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The University of Iowa 2009-10 General Catalog

The General Catalog provides information about academic programs at The University of Iowa, one of three universities governed by the Board of Regents, State of Iowa. The Catalog also provides links to supporting offices at the University, a list of administrative officers, an A-Z list of University of Iowa faculty members, a University calendar, and information extracted from the Iowa Administrative Code regarding admission requirements and Iowa resident/nonresident standing.

The General Catalog is published for informational purposes and should not be construed as the basis of a contract between a student and The University of Iowa. Every effort is made to provide information that is accurate at the time of publication. However, information on courses, curricula, fees, policies, regulations, and other matters is subject to change any time during the period for which the Catalog is in effect.

This edition of the Catalog was published August 2009. For a PDF version of this Catalog and archived back editions, visit http://www.registrar.uiowa.edu/registrar and use the "Select a Catalog" drop-down menu.

The General Catalog is produced by the Office of the Registrar and the Office of University Relations. Your comments and suggestions are welcome. Questions concerning the Catalog may be directed to the Office of the Registrar at registrar-publications@uiowa.edu.

The University of Iowa has been accredited by the North Central Association of Colleges and Schools (30 North LaSalle Street, Suite 2400, Chicago, IL 60602; 312-263-0456) since the association's organization in 1913. The University is a member of the Association of American Universities and is associated with Indiana, Michigan State, Northwestern, Ohio State, Pennsylvania State, and Purdue Universities and the Universities of Illinois, Michigan, Minnesota, and Wisconsin in the Big Ten Conference. Along with the Big Ten universities, it also is associated with The University of Chicago in the Committee for Institutional Cooperation (CIC).

The University of Iowa prohibits discrimination in employment, educational programs, and activities on the basis of race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity, or associational preference. The University also affirms its commitment to providing equal opportunities and equal access to University facilities. For additional information, contact the Office of Equal Opportunity and Diversity, 202 Jessup Hall, The University of Iowa, Iowa City, IA 52242-1316; 319-335-0705 (voice) and 319-335-0697 (text).
The University of Iowa offers academic degree and nondegree programs at the undergraduate and graduate levels. It also offers postdoctoral study and other opportunities for nondegree study and research. The General Catalog describes the University's degree and nondegree programs at the undergraduate and graduate levels.

The following pages provide global information about undergraduate, graduate, and professional study across the University. They include lists of all undergraduate majors (including tracks and emphases), certificates, and minors, with links to the relevant Catalog sections; a link to the College of Liberal Arts and Sciences' undergraduate General Education Program; information about the undergraduate Four-Year Graduation Plan; information about graduate and professional study; descriptions of the University's course numbering and grading systems; and contact information for supporting offices (admissions, registrar, housing, student financial aid, and equal opportunity).

- Undergraduate Study
  - Undergraduate Majors and Pre-majors
  - Undergraduate Certificates
  - Undergraduate Minors
  - General Education Program
  - Four-Year Graduation Plan
- Graduate and Professional Study
- Course Numbering
- Grading
- Supporting Offices

For information about degree and nondegree programs in specific disciplines and interdisciplinary areas, including graduation requirements and courses offered, see the links under Colleges and Other Academic Units in the Catalog.

To find the Catalog section for a specific academic department or program, use the Catalog's A-Z Directory or the Catalog Contents index.
Undergraduate Study

University of Iowa undergraduate students may earn majors, certificates, and minors in more than 100 subject areas. Many majors have varied tracks or emphases, which students may choose according to their own educational goals and interests. Each program is described in the 2009-10 General Catalog, with information on courses and other graduation or completion requirements. Click on the program links under "Undergraduate Majors and Pre-majors," "Undergraduate Certificates," and "Undergraduate Minors."

- Undergraduate Majors and Pre-majors
- Undergraduate Certificates
- Undergraduate Minors

Students enrolled in the College of Liberal Arts and Sciences must complete the college's General Education Program in order to earn an undergraduate degree; other colleges also require General Education course work as part of their undergraduate curricula. For a detailed description of the program and its requirements, use the following link.

- General Education Program

Students who enter the University directly from high school may choose to participate in the Four-Year Graduation Plan, in which students agree to certain conditions that guide their study, and the University ensures availability of courses that students need in order to graduate in four years or provides remedies for delays in graduation due to lack of a course.

- Four-year Graduation Plan
**Undergraduate Majors and Pre-majors**

The University of Iowa offers the following undergraduate majors, pre-majors, and preparatory course work for selected professional degrees. Some majors offer Teacher Education Programs or the opportunity to earn a degree with teacher licensure, as indicated below. Each major links to the appropriate section of the 2009-10 General Catalog. Additional information about all majors is available on the Office of Admissions web site under Undergraduate Admissions: Majors & Programs.

**Majors and Tracks/Emphases**

Accounting (B.B.A.)

Actuarial Science (B.S.): see Statistics and Actuarial Science

African American Studies (B.A.)

American Studies (B.A.)

Ancient Civilization (B.A.): see Classics

Anthropology (B.A., B.S.)

Teacher licensure

Applied Physics (B.S.): see Physics and Astronomy

Art (B.A., B.F.A.): see Art and Art History

Option: Teacher Education Program

Art History (B.A.): see Art and Art History

Option: Teacher Education Program

Asian Languages and Literature (B.A.): see Asian and Slavic Languages and Literatures

Chinese Track

Hindi Track

Japanese Track

Sanskrit Track

Teacher licensure

Astronomy (B.A., B.S.): see Physics and Astronomy

Athletic Training (B.S.): see Integrative Physiology

Bachelor of Applied Studies (B.A.S.)

Bachelor of Liberal Studies (B.L.S.)

Biochemistry (B.A., B.S.)

Biology (B.A., B.S.)

Cell and Developmental Biology Track

Comprehensive Biology Track

Evolution Track

Genetics and Biotechnology Track

Neurobiology Track

Physiology and Molecular Biology of Plants Track

Teacher licensure

Biomedical Engineering (B.S.E.)

Bioinformatics/Computational Biology Track

Biomaterials Track

Biosystems/Bioimaging Track

Cardiovascular Biomechanics Track

Musculoskeletal Biomechanics Track

Pre-Medicine Track

Tissue Engineering Track

Business Administration (B.B.A.): see Business

Chemical Engineering (B.S.E.): see Chemical and Biochemical Engineering

Biochemical Engineering Track
Business Track
Chemical Process Engineering Track
Entrepreneurship Track
Environmental Engineering Track
Polymers Track
Pre-Medicine Track
Chemistry (B.A., B.S.)
Teacher licensure

Cinema (B.A.): see Cinema and Comparative Literature

Civil Engineering (B.S.E.): see Civil and Environmental Engineering
Civil Subtrack
Environmental Subtrack
Civil Engineering Practice Track (Civil or Environmental)
Entrepreneurial Career Path Track (Civil or Environmental)
Environmental Health Engineering Track (Environmental)
Environmental Remediation and Control Track (Environmental)
Green Engineering Track (Environmental)
Management Track (Civil or Environmental)
Structures, Mechanics, and Materials Track (Civil or Environmental)
Transportation Engineering Track (Civil or Environmental)
Urban and Regional Planning Track (Civil or Environmental)
Water Resources Engineering Track (Civil or Environmental)

Classical Languages (B.A.): see Classics
Teacher licensure

Clinical Laboratory Sciences (B.S.)

Communication Studies (B.A.)

Comparative Literature (B.A.): see Cinema and Comparative Literature
Foreign Language and Literature Track
Literature and Arts Track

Computer Science (B.A., B.S.)

Dance (B.A., B.F.A.)

Economics (B.A., B.B.A., B.S.)

Electrical Engineering (B.S.E.): see Electrical and Computer Engineering
Computer Engineering Subtrack
Electrical Engineering Subtrack
Information Engineering Subtrack

Elementary Education (B.A., B.S.)
Teacher licensure

Engineering (B.S.E.)

English (B.A.)
Creative Writing Track
Option: Teacher Education Program

Environmental Sciences (B.S.)
Biosciences Track
Chemical Sciences Track
Geosciences Track
Hydrosciences Track

Finance (B.B.A.)

French (B.A.): See French and Italian
French and Arabic Track
Language Track
Literature and Culture Track
Teaching Track

Geography (B.A., B.S.)
Environmental Studies Track
Geographic Information Science Track
Geography and Social Change Track
Teacher licensure

Geoscience (B.A., B.S.)

German (B.A.)
Applied German Track
Comprehensive Track
Humanities Track
Teacher licensure

Health and Sport Studies (B.A.)
Health Promotion Track
Sport Studies Track

History (B.A.)
Teacher licensure

Industrial Engineering (B.S.E.): see Mechanical and Industrial Engineering
Computer and Information Systems Track
Entrepreneurship Track
Human Factors and Ergonomics Track
Management Track
Manufacturing and Logistics Systems Track
Medical Systems Track

Informatics (B.A., B.S.): see Computer Science

Integrative Physiology (B.S.)

Interdepartmental Studies (B.A.)
Individualized Plan of Study Track
Health Sciences Track
Business Studies Track

International Studies (B.A.)
African Studies Emphasis
Caribbean Studies Emphasis
Development Emphasis
East Asian Studies Emphasis
European Studies Emphasis
Global Artistic Tradition and Change Emphasis
Global Health Emphasis
Global Resources and Environment Emphasis
Human Rights Emphasis
International Business Emphasis
International Communication and Information Emphasis
International Politics and International Relations Emphasis
Latin American Studies Emphasis
Middle East and Muslim World Studies Emphasis
Postcolonial and Diasporic Studies Emphasis
Russian, East European, and Eurasian Studies Emphasis
Self-Directed Emphasis
South Asian Studies Emphasis
War, Peace, and Security Emphasis

Italian (B.A.): see French and Italian
Teacher licensure

Journalism and Mass Communication (B.A., B.S.)

Leisure Studies (B.S.)
Child Life Track
Therapeutic Recreation Track

Linguistics (B.A.)
Teaching English as a Second Language Emphasis
Literature, Science, and the Arts (B.A.); entry closed

Management (B.B.A.): see Management and Organizations

Management Information Systems (B.B.A.): see Management Sciences

Marketing (B.B.A.)

Mathematics (B.A., B.S.)
General Track (Program A)
Math Education Track (Program B)
Specialization Areas Track (Program C)
Teacher licensure

Mechanical Engineering (B.S.E.): see Mechanical and Industrial Engineering
Bioengineering Track
Energy and Utilization Track
Entrepreneurship Track
Environmental Transport Processes Track
Management Track
Manufacturing and Materials Processing Track
Mechanical Engineering Design Track
Robotics and Mechatronics Track
Simulation and Visualization Track

Microbiology (B.S.)

Music (B.A., B.M.)
Brass/Woodwind Track (Teacher Education Program)
Composition Track
Jazz Studies Track (Option: Teacher Education Program)
Music Therapy Track
Organ Track
Percussion Track (Option: Teacher Education Program)
Piano Track (Option: Teacher Education Program)
String Track (Teacher Education Program)
Voice Track (Teacher Education Program)

Nuclear Medicine Technology (B.S.)

Nursing (B.S.N.)
Articulation Option 1
Articulation Option 2
Articulation Option 3
Articulation Option 4

Oral Health Science (B.S.): see College of Dentistry

Performing Arts Entrepreneurship (B.A.); entry closed
Dance Emphasis
Music Emphasis
Theatre Arts Emphasis

Pharmacy (Pharm.D.)

Philosophy (B.A.)

Physics (B.A., B.S.): see Physics and Astronomy
Teacher licensure

Political Science (B.A., B.S.)
Teacher licensure

Portuguese (B.A.): see Spanish and Portuguese
Teacher licensure

Psychology (B.A., B.S.)
Teacher licensure

Radiation Sciences (B.S.)

Religious Studies (B.A.)
Russian (B.A.): see Asian and Slavic Languages and Literatures
Teacher licensure
Science Education (B.S.)
Biology Emphasis
Chemistry Emphasis
Earth Science Emphasis
Physics Emphasis
Teacher licensure

Social Work (B.A.)

Sociology (B.A., B.S.)

Spanish (B.A.): see Spanish and Portuguese
Teacher licensure
Speech and Hearing Science (B.A.): see Communication Sciences and Disorders

Statistics (B.S.): see Statistics and Actuarial Science
Math Track
Statistical Computing Track
Statistics in Business, Industry, Government, and Research Track

Theatre Arts (B.A.)

Women's Studies (B.A.)

Pre-majors

For information about the following pre-majors and preparatory course work for selected professional degrees, see the Office of Admissions web site Undergraduate Admissions: Majors & Programs.

Pre-Chiropractic
Dentistry (preparatory course work for the D.D.S.)
Law (preparatory course work for the J.D.)
Medicine (preparatory course work for the M.D.)
Pre-Mortuary Science
Pre-Optometry
Pharmacy (preparatory course work for the Pharm.D.)
Physical Therapy (preparatory course work for the D.P.T.)
Physician Assistant (preparatory course work for the M.P.A.S.)
Pre-Podiatric Medicine
Pre-Veterinary Medicine
Undergraduate Certificates

The University of Iowa offers a number of certificates for undergraduates, most in interdisciplinary areas. Colleges offering undergraduate certificates include the College of Liberal Arts and Sciences, the Tippie College of Business, the College of Public Health, and University College.

Certificate in Aging Studies
Certificate in American Indian and Native Studies
Certificate in American Sign Language and Deaf Studies: see American Sign Language
Certificate in Critical Cultural Competence
Certificate in Entrepreneurial Management: see Entrepreneurship
Certificate in Global Health Studies
Certificate in International Business
Certificate in Latin American Studies
Certificate in Medieval Studies
Certificate in Museum Studies
Certificate in Nonprofit Management
Certificate in Performing Arts Entrepreneurship
Certificate in Philosophies and Ethics of Politics, Law, and Economics
Certificate in Public Health
Certificate in Risk Management and Insurance
Certificate in Sexuality Studies
Certificate in Sustainability
Certificate in Technological Entrepreneurship: see Entrepreneurship
Postbaccalaureate Certificate in Classics; see Classics
Undergraduate Minors

Undergraduate minors are offered in numerous disciplines and interdisciplinary areas by the College of Liberal Arts and Sciences, the Tippie College of Business, and the College of Education.

African American Studies
Aging Studies
American Indian and Native Studies
American Sign Language
American Studies
Ancient Civilization: see Classics
Anthropology
Art: see Art and Art History
Art History: see Art and Art History
Asian Languages (emphasis in Chinese, Hindi, Japanese, or Sanskrit): see Asian and Slavic Languages and Literatures
Astronomy: see Physics and Astronomy
Biology
Business Administration: see "Undergraduate Programs" in Business
Chemistry
Cinema: see Cinema and Comparative Literature
Classical Languages: see Classics
Communication Studies
Comparative Literature: see Cinema and Comparative Literature
Computer Science
Dance
Economics
Educational Psychology: see Psychological and Quantitative Foundations
English
Environmental Sciences
French: see French and Italian
Geography
Geoscience
German
Global Health Studies
Greek: see Classics
Health and Sport Studies
History
Human Relations: see Counseling, Rehabilitation, and Student Development
Informatics: see Computer Science
Integrative Physiology
International Studies
Italian: see French and Italian
Latin: see Classics
Latin American Studies
Leisure Studies
Linguistics
Mass Communication: see Journalism and Mass Communication
Mathematics
Microbiology
Music
Philosophy
Physics: see Physics and Astronomy
Political Science
Portuguese: see Spanish and Portuguese
Psychology
Religious Studies
Russian: see Asian and Slavic Languages and Literatures
Social Work
Sociology
Spanish: see Spanish and Portuguese
Statistics: see Statistics and Actuarial Science
Theatre Arts
Women's Studies
General Education Program

All students entering the College of Liberal Arts and Sciences who wish to earn a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Liberal Studies (B.L.S.), or a Bachelor of Music (B.M.) degree must complete the CLAS General Education Program in addition to the requirements of their major and other requirements for graduation.

Undergraduate degree programs in other colleges include General Education requirements, which often may be satisfied with certain courses approved for the CLAS General Education Program.

For detailed information about CLAS General Education requirements and lists of courses approved in the CLAS General Education areas, see General Education Program (College of Liberal Arts and Sciences).
Four-Year Graduation Plan

The Four-Year Graduation Plan is a partnership between students and the University. Students who sign the Four-Year Graduation Plan agree to a number of conditions that guide their studies and their progress toward a degree. The University’s colleges and departments also agree to certain conditions. They ensure the availability of courses that students need for graduation; they also guarantee that they will provide certain remedies to a student facing a delay in graduation due to lack of a course, as long as the student has met the conditions of the four-year plan. The Tippie College of Business and the Colleges of Engineering, Liberal Arts and Sciences, and Nursing participate in the four-year plan.

Only students who enter the University directly from high school are eligible to participate in the four-year plan. General information on the Four-Year Graduation Plan is available from the Office of Admissions. Information also is available from the participating colleges and the Academic Advising Center.
Graduate and Professional Study

The University of Iowa offers graduate and professional degrees and graduate certificate programs in a broad array of disciplines and interdisciplinary areas of study. Each of its 11 colleges offers master's degrees, and most offer doctoral degrees. Degree programs are presented by individual colleges, with most graduate degrees being granted by the Graduate College.

The Graduate College section of the Catalog provides a list of most University of Iowa graduate degrees as well as information about interdisciplinary graduate degree programs, joint degree programs, and certificate programs.

For information about degree and nondegree programs in specific disciplines and interdisciplinary areas, including graduation requirements and courses offered, see the appropriate General Catalog sections: Tippie College of Business, College of Dentistry, College of Education, College of Engineering, Graduate College, College of Law, College of Medicine, College of Nursing, College of Pharmacy, and College of Public Health.

Prospective graduate and professional students should apply through the Office of Admissions; see Graduate and Professional Admissions on the office's web site.
Course Numbering

Each course in the regular University curriculum has an identifying number, preceded by the number of the college, department, or program that administers the course. For example, 034:001 is the code for the course numbered 001 in the Department of Sociology (034), titled Introduction to Sociology Principles. Course numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduate and graduate students, and numbers 200 and above designate courses primarily for graduate students.

Tippie College of Business

6A           Accounting
6B           Business Administration
6E           Economics
6F           Finance
6J           Management and Organizations
6K           Management Sciences
6M         Marketing
6N          M.B.A. Program
6T           Entrepreneurship
620        College of Business Nondepartmental

College of Dentistry

82           Operative Dentistry
83           Endodontics
84           Prosthodontics
86          Oral Pathology, Radiology, and Medicine
87          Oral and Maxillofacial Surgery
89          Orthodontics
90           Pediatric Dentistry
92           Periodontics
111        Preventive and Community Dentistry
112        Dentistry Nondepartmental
114        Family Dentistry
151        Oral Science

College of Education

7B           Educational Policy and Leadership Studies
7C           Counseling, Rehabilitation, and Student Development
7E         Elementary Education
7P         Psychological and Quantitative Foundations
7S           Secondary Education
7U           Special Education
College of Engineering

51 Biomedical Engineering
52 Chemical and Biochemical Engineering
53 Civil and Environmental Engineering
55 Electrical and Computer Engineering
56 Industrial Engineering
57 Engineering Core
58 Mechanical Engineering
59 Core Engineering

Graduate College

21 Library and Information Science
22A Applied Mathematical and Computational Sciences
102 Urban and Regional Planning
108 Center for the Book
127 Genetics
132 Neuroscience
142 Molecular and Cellular Biology
148 Immunology
156 Biosciences
160 Rhetorics of Inquiry
163 Translational Biomedicine
164 Second Language Acquisition
181 International Writing Program
198 Human Toxicology
200 Informatics
650 Graduate College Nondepartmental

College of Law

91 Law
College of Liberal Arts and Sciences

BLS  Bachelor of Liberal Studies
1A   Fundamentals
1B   Elements of Art
1C   Ceramics
1D   Design
1E   Art Education
1F   Drawing
1G   Metalworking and Jewelry
1H   Art History
1J   Multimedia and Video Art
1K   Painting
1L   Photography
1M   Printmaking
1N   Sculpture
1P   Art Interdepartmental
1X   Papermaking
1Y   Bookbinding
1Z   Calligraphy
2    Biology
3    Communication Sciences and Disorders
4    Chemistry
6    Prebusiness
6E   Economics
8    English
8A   English Department Nonmajor Course Work
8C   Creative Writing--Writers' Workshop
8G   General Education--Literature
8L   English Language and Linguistics Instruction
8N   Nonfiction Writing
8P   English Professional
8W   English Writing
8WS  Writers' Seminars
9    French
10   Rhetoric
12   Geoscience
13
  German

13E
  German in Translation

15
  Open Major

16
  History

16A
  American History

16E
  European History

16W
  World History

18
  Italian

19
  Journalism and Mass Communication

20E
  Classics in English

20G
  Greek

20L
  Latin

22C
  Computer Science

22M
  Mathematics

22S
  Statistics and Actuarial Science

25
  Music

26
  Philosophy

27
  Integrative Physiology

28
  Health and Sport Studies

28S
  Health and Physical Activity Skills

29
  Physics and Astronomy

30
  Political Science

31
  Psychology

32
  Religious Studies

33
  Literature, Science, and the Arts

34
  Sociology

35
  Spanish

36
  Communication Studies

38
  Portuguese

39
  Asian and Slavic Languages and Literatures

39J
  Japanese

41
  Russian

42
  Social Work

44
  Geography

45
  American Studies

48
  Cinema and Comparative Literature

49
  Theatre Arts

61
  Microbiology

97
  Science Education

99
  Biochemistry
Carver College of Medicine

50  Medicine Nondepartmental
60  Anatomy and Cell Biology
61  Microbiology
62  Dermatology
64  Neurology
66  Obstetrics and Gynecology
67  Ophthalmology and Visual Sciences
68  Otolaryngology--Head and Neck Surgery
69  Pathology
70  Pediatrics
71  Pharmacology
72  Molecular Physiology and Biophysics
73  Psychiatry
74  Radiology
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>75</td>
<td>Surgery</td>
</tr>
<tr>
<td>76</td>
<td>Orthopaedics and Rehabilitation</td>
</tr>
<tr>
<td>77</td>
<td>Free Radical and Radiation Biology</td>
</tr>
<tr>
<td>78</td>
<td>Internal Medicine</td>
</tr>
<tr>
<td>79</td>
<td>Urology</td>
</tr>
<tr>
<td>99</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>101</td>
<td>Physical Therapy and Rehabilitation Science</td>
</tr>
<tr>
<td>115</td>
<td>Family Medicine</td>
</tr>
<tr>
<td>116</td>
<td>Anesthesiology</td>
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<td>117</td>
<td>Physician Assistant Program</td>
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<td>183</td>
<td>Neurosurgery</td>
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<td>184</td>
<td>Emergency Medicine</td>
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<td>186</td>
<td>Radiation Oncology</td>
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<td>193</td>
<td>Cardiothoracic Surgery</td>
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<td>197</td>
<td>Medical Education Program</td>
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<tr>
<td>670</td>
<td>Radiologic Technology Program</td>
</tr>
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<td>671</td>
<td>Orthoptics Teaching Program</td>
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<tr>
<td>672</td>
<td>Radiation Therapy Program</td>
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<tr>
<td>673</td>
<td>Diagnostic Medical Sonography</td>
</tr>
<tr>
<td>674</td>
<td>Magnetic Resonance Imaging</td>
</tr>
<tr>
<td>675</td>
<td>Vascular Imaging Technology</td>
</tr>
<tr>
<td>676</td>
<td>Computed Tomography Program</td>
</tr>
<tr>
<td>677</td>
<td>EMT--Paramedic Program</td>
</tr>
<tr>
<td>678</td>
<td>Quality Management/PACS</td>
</tr>
<tr>
<td>679</td>
<td>Breast Imaging Program</td>
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</table>

**College of Nursing**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>96</td>
<td>All courses</td>
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</tbody>
</table>

**College of Pharmacy**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>46</td>
<td>All courses</td>
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</table>

**College of Public Health**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
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<tr>
<td>170</td>
<td>Master of Public Health Program</td>
</tr>
<tr>
<td>Course Number</td>
<td>Program/Center</td>
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<tr>
<td>--------------</td>
<td>----------------------------------------------------</td>
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<tr>
<td>171</td>
<td>Biostatistics</td>
</tr>
<tr>
<td>172</td>
<td>Community and Behavioral Health</td>
</tr>
<tr>
<td>173</td>
<td>Epidemiology</td>
</tr>
<tr>
<td>174</td>
<td>Health Management and Policy</td>
</tr>
<tr>
<td>175</td>
<td>Occupational and Environmental Health</td>
</tr>
<tr>
<td>185</td>
<td>Public Health Genetics</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>University College</strong></td>
<td></td>
</tr>
<tr>
<td>BAS</td>
<td>Bachelor of Applied Studies</td>
</tr>
<tr>
<td>L</td>
<td>Iowa Lakeside Laboratory</td>
</tr>
<tr>
<td>23</td>
<td>Military Science</td>
</tr>
<tr>
<td>23A</td>
<td>Aerospace Studies</td>
</tr>
<tr>
<td>24</td>
<td>Museum Studies</td>
</tr>
<tr>
<td>143</td>
<td>University of Iowa Honors Program</td>
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<tr>
<td>165</td>
<td>Study Abroad</td>
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<tr>
<td>166</td>
<td>Belin-Blank Center for Gifted Education</td>
</tr>
<tr>
<td>168</td>
<td>Iowa Biosciences Advantage</td>
</tr>
<tr>
<td>204</td>
<td>Nonprofit Management</td>
</tr>
<tr>
<td>206</td>
<td>Sustainability Program</td>
</tr>
<tr>
<td>401</td>
<td>University of Iowa Upward Bound</td>
</tr>
<tr>
<td>402</td>
<td>Center for Diversity &amp; Enrichment</td>
</tr>
<tr>
<td>403</td>
<td>Research Experiences for Undergraduates in Microbiology</td>
</tr>
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<td>405</td>
<td>Summer Undergraduate MSTP Research Program</td>
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<tr>
<td>406</td>
<td>Iowa Young Writers' Studio</td>
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<tr>
<td>407</td>
<td>College Success Initiatives</td>
</tr>
<tr>
<td>408</td>
<td>Intercollegiate Athletic Participation</td>
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<td>409</td>
<td>Career Center Programs</td>
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<tr>
<td>410</td>
<td>Lifetime Leisure Skills</td>
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<td>411</td>
<td>Alliances for Graduate Education and the Professoriate Summer Program</td>
</tr>
<tr>
<td>412</td>
<td>Orientation Training</td>
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<tr>
<td>413</td>
<td>Student Services</td>
</tr>
<tr>
<td>414</td>
<td>Patient Care Practicum</td>
</tr>
<tr>
<td>415</td>
<td>University Housing</td>
</tr>
<tr>
<td>416</td>
<td>Student Information Technology Skills</td>
</tr>
<tr>
<td>417</td>
<td>University Libraries</td>
</tr>
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<td>418</td>
<td>Secondary Student Training Program</td>
</tr>
<tr>
<td>419</td>
<td>VIGRE Heartland REU</td>
</tr>
</tbody>
</table>
420 First-Year Programs
Grading

The University uses a letter grading system for individual courses, except for the College of Law, which uses a numeric system for course grading. In order to compute grade-point average, letter grades are converted according to the following numerical scale. Grade-point averages are displayed at the bottom of students' grade reports and are truncated so as not to exceed 4.00. All of the following marks appear on the permanent record.

**Grade points for each semester hour**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
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<tr>
<td>A+</td>
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<tr>
<td>A</td>
<td>4.00</td>
</tr>
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<td>A-</td>
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<tr>
<td>B+</td>
<td>3.33</td>
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<tr>
<td>B</td>
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<td>B-</td>
<td>2.67</td>
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<tr>
<td>C+</td>
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<td>C</td>
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<td>C-</td>
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</tr>
<tr>
<td>D-</td>
<td>0.67</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

**Not used in computing grade-point average:**

- N: Nonpass
- P: Pass
- S: Satisfactory
- U: Unsatisfactory

**Other marks on the permanent record:**

- I: Incomplete
- O: No grade reported
- R: Registered, no grade required
- W: Withdrawn
- #: Changed grade
- *: Grade not included in G.P.A.
- #: Undergraduate honors section
Supporting Offices

Prospective undergraduate, graduate, and professional students should apply to the University through the Office of Admissions. Several other University of Iowa offices provide major services to entering and continuing students.

Application for admission (undergraduate, graduate, and professional programs):

Office of Admissions
The University of Iowa
107 Calvin Hall
Iowa City, IA 52242-1396
Phone: toll-free nationwide 1-800-553-4692; direct dial 1-319-335-3847
E-mail: admissions@uiowa.edu
Web site: http://www.uiowa.edu/admissions

Registration, residency status, transcripts, tuition and fees, services for veterans, verifications, classroom scheduling:

Office of the Registrar
The University of Iowa
1 Jessup Hall
Iowa City, IA 52242-1316
Phone: 1-319-335-0238
E-mail: registrar@uiowa.edu
Web site: http://www.registrar.uiowa.edu

Student housing information, application:

University Housing
The University of Iowa
17 Burge Hall
Iowa City, IA 52242-1298
Phone: 1-319-335-3009
E-mail: reshall-housing@uiowa.edu
Web site: http://www.housing.uiowa.edu

Scholarships, grants, loans, student employment:

Office of Student Financial Aid
The University of Iowa
208 Calvin Hall
The University of Iowa
Iowa City, IA 52242-1315
Phone: 1-319-335-1450
E-mail: financial-aid@uiowa.edu
Web site: http://www.uiowa.edu/financial-aid

Equal opportunity/nondiscrimination:

Office of Equal Opportunity & Diversity
202 Jessup Hall
The University of Iowa
Iowa City, IA 52242-1316
Phone: voice 1-319-335-0705; text 1-319-335-0697
E-mail: diversity@uiowa.edu
Web site: http://www.uiowa.edu/~eod
Colleges and Other Academic Units

The University of Iowa offers academic programs and courses through its 11 colleges, University College, and the Division of Continuing Education. For information on each unit, including its constituent departments, programs, and schools and its academic programs (degrees, certificates, minors), click on the following links. University courses are listed under the units that offer them.

- College of Liberal Arts and Sciences
- Tippie College of Business
- College of Dentistry
- College of Education
- College of Engineering
- Graduate College
- College of Law
- Carver College of Medicine
- College of Nursing
- College of Pharmacy
- College of Public Health
- University College
- Division of Continuing Education
College of Liberal Arts and Sciences

Dean: Linda Maxson
Executive associate dean: Raúl Curto
Associate dean for undergraduate programs and curriculum: Helena Dettmer
Associate dean for research and development: Joseph K. Kearney
Web site: http://www.clas.uiowa.edu/

The College of Liberal Arts and Sciences (CLAS) is the oldest and largest of the 11 colleges that make up The University of Iowa. Students from all over the United States and more than 50 other nations study together in the college. Every University of Iowa undergraduate takes courses offered by the college, and more than 75 percent of undergraduates earn their degrees from the College of Liberal Arts and Sciences.

The college provides a comprehensive liberal arts education and advanced education in specialized areas. It offers more than 70 majors and certificates as well as a wide variety of minors and opportunities for interdisciplinary work. Students also may design their own majors through the Bachelor of Arts in interdepartmental studies.

In addition to their academic pursuits, students participate in the college in a variety of ways. They serve on the Dean's Student Advisory Committee and as members of the Educational Policy Committee and the General Education Curriculum Committee--collegiate committees that advise the deans on important educational issues. Students also are invited to serve on ad hoc committees within the college, and many departments have an undergraduate student group or association. CLAS students serve in the University of Iowa Student Government, too. Interested students should contact the appropriate committee or office.

CLAS Web Site

The College of Liberal Arts and Sciences web site contains a wealth of information for students and faculty members.

Students find information on academic policies and procedures on the For Students pages, including requirements of the CLAS General Education Program (see Student Academic Handbook). Information about scholarships, service opportunities, and upcoming deadlines also is available on the For Students pages.

The Departments and Programs link provides a list of CLAS administrative units (departments, programs, and schools) and undergraduate majors, certificates, and minors.

Faculty members turn to the CLAS web site for information on teaching and curriculum resources to use when advising and instructing students, and updates on important CLAS committees.

The CLAS web site also includes a home page for the Office of the Dean and for CLAS Academic Programs & Services as well as links to other helpful pages.

CLAS Academic Programs & Services

Located in Schaeffer Hall, at the center of campus, CLAS Academic Programs & Services is an integral part of the College of Liberal Arts and Sciences. The office, which is led by the associate dean for undergraduate programs and curriculum, welcomes students wishing to declare or change majors, file second-grade-only options, request permission to register late, add or drop a course late, or withdraw an entire registration after the established deadlines.

The office's staff members answer students' questions concerning academic requirements or programs, and they frequently meet with students concerning General Education Program requirements, graduation requirements, and collegiate policies that affect students.

Students in the College of Liberal Arts and Sciences may request exceptions to CLAS rules and requirements by petitioning CLAS Academic Programs & Services. All students should discuss their questions and need for an exception first with a staff member in the office.

The office's associate directors work closely with students on academic probation and counsel them on strategies for success. They also conduct semiannual reviews of students on academic probation and consider requests for reinstatement.

CLAS Academic Programs & Services recommends appropriate disciplinary action for academic fraud, such as acts of plagiarism, cheating, and forgery, and for other academic misconduct. It also handles dismissals from the College.

General Education Program

All students entering the College of Liberal Arts and Sciences who wish to earn a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Liberal Studies (B.L.S.), of a Bachelor of Music (B.M.)
degree must complete the CLAS General Education Program in addition to the requirements of their major and other requirements for graduation.

For General Education requirements, related academic policies, and lists of approved courses, see General Education Program under "College of Liberal Arts and Sciences Academic Program Index" below.

**CLAS Units and Academic Programs**

The College of Liberal Arts and Sciences includes nearly 40 administrative units ranging across the fine and performing arts, humanities and letters, social sciences, and natural and mathematical sciences. These units offer nearly 70 undergraduate majors and certificates as well as a wide variety of minors. They also offer more than 50 graduate programs (with degrees granted by the Graduate College).

**Undergraduate Majors, Certificates, and Minors**

The college offers undergraduate majors in a broad range of disciplines; for program descriptions and requirements, see the links under "College of Liberal Arts and Sciences Academic Program Index" below. In addition, several majors are offered to CLAS students by other colleges at the University, with the College of Liberal Arts and Sciences granting the degrees.

The Tippie College of Business offers a major in economics (B.A. and B.S.); the Carver College of Medicine offers majors in biochemistry (B.A. and B.S.) and in microbiology (B.S.); and the College of Education offers majors in elementary education (B.A. or B.S.) and in science education (B.S.). Link to information about these majors under "College of Liberal Arts and Sciences Academic Program Index" below.

The College of Education also offers a Teacher Education Program leading to licensure at the secondary level for students who have completed certain CLAS majors, such as English, mathematics, and art, and who wish to work with students in middle or high school. Students must apply for admission to College of Education programs; contact the college's Office of Teacher Education and Student Services.

Students who begin their study in the College of Liberal Arts and Sciences may earn undergraduate degrees in clinical laboratory sciences, nuclear medicine technology, and radiation sciences; see the Carver College of Medicine section of the Catalog for information about those majors.

The College of Liberal Arts and Sciences offers a broad array of certificates and minors for undergraduate students. In addition, the college collaborates with the University's International Programs office to offer the Certificate in Global Health Studies and the Certificate in Latin American Studies, and it offers the Certificate in International Business together with the Tippie College of Business. Link to information about CLAS certificates and minors under "College of Liberal Arts and Sciences Academic Program Index" below.

CLAS undergraduates may earn certificates and minors offered by other colleges, too. The Tippie College of Business offers the Certificate in Entrepreneurship, the Certificate in Risk Management and Insurance, and the minor in business administration. The College of Public Health offers the Certificate in Public Health. University College offers the Certificate in Museum Studies, the Certificate in Nonprofit Management, and the Certificate in Sustainability. The College of Education offers minors in educational psychology and in human relations. For lists of all undergraduate certificates and minors offered by the University, see Certificates and Minors in the Academics at Iowa/Undergraduate Study section of the Catalog.

Undergraduates also may take courses in book arts from the Center for the Book, a Graduate College program that offers a graduate certificate.

**Graduate Degrees and Certificates**

The College of Liberal Arts and Sciences offers graduate programs in most of its disciplines, with degrees granted by the Graduate College. Students may earn degrees at the master's and doctoral levels; graduate certificates are available in some areas of study. See Degrees Offered in the Graduate College section of the Catalog for a complete list of graduate degrees offered by the University.

For information about CLAS graduate programs, see the links under "College of Liberal Arts and Sciences Academic Program Index" below.

**Nondepartmental Courses**

Most College of Liberal Arts and Sciences courses are offered by the college's departments, programs, and schools. They are listed and described in the corresponding General Catalog sections; see the links under "College of Liberal Arts and Sciences Academic Program Index."
The college also offers the following nondepartmental courses.

**610:029 First-Year Seminar**  1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**610:030 Explorations in Computing, Mathematics, and Science**  1 s.h.
Presentations by science and math faculty members, discussions with visiting scientists, visits to campus labs, off-campus science field trips; for students in Explorations in Computing, Mathematics, and Science Living-Learning Community. Prerequisite: first-year standing in CMS Learning Community.

**610:040 Citizenship, Leadership, and Service I**  1 s.h.
Presentations by faculty members, scholars, activists; guided discussions with visiting scholars and activists, other varied activities; for students in Citizenship, Leadership & Service Living-Learning Community. Prerequisite: enrollment in CLS Learning Community.

**610:050 Citizenship, Leadership, and Service II**  1 s.h.
Continuation of 610:040; individual volunteer opportunities, participation in service learning projects; presentations by faculty and community members, visits to University and community resources. Prerequisites: 610:040 and member of Citizenship, Leadership & Service Living-Learning Community.

**610:099 Peer Mentoring**  1-2 s.h.
Opportunities to participate in classroom and course activities as mentors for other students.
African American Studies

Chair: Carin M. Green
Coordinator: Venise Berry
Professor: Horace Porter (English/American Studies/African American Studies)
Associate professors: Venise Berry (Journalism and Mass Communication/African American Studies), Tim Havens (Communication Studies/African American Studies), Tisch Jones (Theatre Arts/African American Studies), Michael Lomax (African American Studies/Leisure Studies), Sydné Mahone (Theatre Arts/African American Studies), Vershawn Young (Rhetoric/African American Studies)
Assistant professors: Lena Hill (English/African American Studies), Michael Hill (English/African American Studies), Miriam Thaggert (English/African American Studies), Bridget Tsemo (Rhetoric/African American Studies), Deborah Whaley (American Studies/African American Studies)

Undergraduate degree: B.A. in African American Studies
Undergraduate nondegree program: Minor in African American Studies
Graduate degree: M.A. in African American World Studies
Web site: http://www.uiowa.edu/~afam/index.html

African American studies focuses on the study of people of African descent in the United States and the African diaspora. The African American Studies Program originated in 1969 through courses intended to foster awareness of African Americans’ role in the development of the United States and the world. Because a thorough understanding of the African American experience cannot be achieved through study restricted to the perspective of a single discipline, all students are required to pursue courses in the humanities, social sciences, and performing arts.

The African American Studies Program draws upon faculty from American studies, communication studies, education, health and sport studies, history, journalism and mass communication, religious studies, rhetoric, sociology, theatre arts, and women's studies. Future course work in political economy, gender and sexism, and the construction of race and identity is planned.

Undergraduate Programs

The program offers a Bachelor of Arts and a minor in African American studies.

Bachelor of Arts

The Bachelor of Arts in African American studies requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in the major. Transfer credit is evaluated case-by-case and is limited to a maximum of 9 s.h. Students must complete the College of Liberal Arts and Sciences General Education Program.

INTRODUCTORY COURSES

Students are required to complete 129:062 Foundations in African American Studies, and either 129:060 Introduction to African American Society or 129:061 Introduction to African American Culture.

Foundations in African American Studies (129:062) explores the history and the methodology of African American studies. Starting with readings related to the formation of the discipline, the course shows students what an African American studies approach to interpretation entails and culminates in a research paper.

Introduction to African American Society (129:060) examines the construction of social and historical institutions in the United States and the African diaspora (e.g., Black church, Black family, gender, sexuality). The course may include readings in political science, religion, history, sociology, geography, anthropology, and other disciplines.

Introduction to African American Culture (129:061) presents themes in African American cultural studies. It includes readings in literature, music, film studies, religious studies, and the visual and performing arts.

AFRICAN AMERICAN STUDIES CORE

In addition to the two required introductory courses, all students must complete at least two courses from each of the three topical areas below (minimum of 18 s.h.). Additional courses may be approved for the topical areas; consult with an African American studies advisor.

History, Religion, and the Diaspora

Two of these:

07B:126 Twentieth-Century Educational Movements 2-3 s.h.
129:008 Literatures of the African Peoples 3 s.h.
129:050 Introduction to African American Religions 3 s.h.
129:063 African American Islam/International Perspective 3 s.h.
129:065 Introduction to African American History 3 s.h.
129:123 Twentieth-Century African American Religion: Civil Rights to Hip-Hop 3 s.h.
129:124 Black Culture and Experience (when topic is history, religion, or the diaspora) 3 s.h.
129:137 History of Slavery in the U.S.A. 3-4 s.h.
129:138 African and African American Interactions 3 s.h.
129:140 Topics in African American Studies (when topic is history, religion, or the diaspora) arr.
129:158 Topics in African Cinema 3 s.h.
129:163 Pre-Colonial African History 3 s.h.
129:164 African History Since 1880 3 s.h.
129:184 Black Global Metropolis: Sexual History 3 s.h.
129:187 African American History 1865-Present 3 s.h.
129:189 Themes in African American History 3 s.h.

Literature and Performing Arts

Two of these:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>129:069</td>
<td>Selected African American Authors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:116</td>
<td>African American Literature Before 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:117</td>
<td>African American Literature Since 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:124</td>
<td>Black Culture and Experience (when topic is literature or performing arts)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:128</td>
<td>Racial Narrative and American Performance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:130</td>
<td>African American Literary/Rhetorical Criticism I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:131</td>
<td>African American Literary/Rhetorical Criticism II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:140</td>
<td>Topics in African American Studies (when topic is literature or performing arts)</td>
<td>arr.</td>
</tr>
<tr>
<td>129:162</td>
<td>Midwest African American Literature and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:175</td>
<td>African American Theatre I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:181</td>
<td>African American Autobiography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:182</td>
<td>Free Style Writing: Poetry, Plays, and Performances</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:183</td>
<td>Black Feminist Tradition and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:186</td>
<td>African American Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:191</td>
<td>African American Theatre II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Media, Politics, and Society

Two of these:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>129:076</td>
<td>Race, Ethnicity, and Media</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:079</td>
<td>Race and Ethnicity in Sport</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:122</td>
<td>African Americans and the Media</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:124</td>
<td>Black Culture and Experience (when topic is media, politics, or society)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:140</td>
<td>Topics in African American Studies (when topic is media, politics, or society)</td>
<td>arr.</td>
</tr>
<tr>
<td>129:153</td>
<td>The Civil Rights Movement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:161</td>
<td>Insurgency and Globalization of Discontent</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

ELECTIVES

Students also must take two elective courses (minimum of 6 s.h.) selected from the three topical areas listed above. With the approval of an African-American studies advisor, students may substitute relevant courses offered by other departments for one or both electives; the substituted courses may not be cross-referenced with African American studies. Students must gain the advisor's approval before enrolling in a substitute course.

LANGUAGE REQUIREMENT

The language requirement for the African American studies major is the same as that of the College of Liberal Arts and Sciences General Education Program. Students are encouraged, but not required, to take African language (Swahili is currently offered) or Spanish language courses to fulfill the language requirement.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they
may be offered by departments other than the major department.)

During the first year of study, students should focus on completing the General Education Program, perhaps including beginning Swahili to complete the foreign language component, or taking Spanish language course work.

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** at least three courses in the major, including 129:062 Foundations in African American Studies, and 129:060 Introduction to African American Society or 129:061 Introduction to African American Culture; and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** four more courses in the major (for a total of seven) and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** at least nine courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

The University of Iowa Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. The honors program in African American studies offers students the opportunity to pursue special interests in individual in-depth research. Honors students in African American studies must be members of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Honors students complete all of the required course work for the major (30 s.h.).

Students who wish to graduate with honors in African American studies are encouraged to register for up to 6 s.h. in 129:095 Honors Project. Work in this course enhances the student's ability to complete honors projects under the guidance of the supervising faculty member. Students take 129:095 Honors Project with the approval of their African American studies advisor, who typically supervises the course. Students may count up to 6 s.h. earned in 129:095 Honors Project toward the 33 s.h. required for the major.

Under the guidance of the African American studies advisor, the honors student defines a research project (thesis) using primary, secondary, or archival sources. The thesis may build upon the student's final project for the Senior Seminar (129:199), but research for the honors thesis must be distinct from that for the student's senior seminar paper and must be more thorough and sophisticated. Students make project proposals by the end of their junior year. Each student completes a thesis under the guidance of a supervising faculty member and presents the results as a senior essay to a committee of three faculty members, including the supervising African American studies faculty member, and two other African American studies faculty members of the student's choice. The student's committee may choose to hear an oral defense of the honors thesis, usually during the student's last semester.

Students should use one or more of their elective courses to develop the honors thesis.

**Minor**

The minor in African American studies requires a minimum of 15 s.h., including 12 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Course work done for another major or minor may not be counted toward the minor in African American studies.

Students must take 129:062 Foundations in African American Studies. In consultation with their advisors, they should select either 129:060 Introduction to African American Society or 129:061 Introduction to African American Culture, and one course in each of the three topical areas (total of three topical area courses, 9 s.h.): history, religion, and the diaspora; literature and performing arts; and media, politics, and society. Two of the three topical area courses must be taken at The University of Iowa.

**Graduate Program**

African American studies is not accepting graduate students in 2009-10.

**Cocurricular Activities**

**Afro-American Cultural Center**

African American studies encourages students to use facilities of the Afro-American Cultural Center. The center serves as a museum and library of educational and cultural artifacts and exhibits of Black culture, providing cultural enrichment
for Black people of the Iowa City community and a cultural meeting place for Black students. It also attempts to provide a knowledge of Black culture that will promote diversity among all members of the University community.

**African American Studies Student Association**

The African American Studies Student Association aims to promote knowledge about people of African descent by sponsoring programs on various topics. Any University of Iowa student interested in African American studies is eligible to become a member.

**Seminar and Lecture Series**

The African American Studies Seminar Series and the Darwin Turner Lecture bring important scholars and creative artists such as Amiri Baraka, Michelle Wallace, and Valerie Smith to the University of Iowa campus.

The New Research in African American Studies lecture series, sponsored by the College of Liberal Arts and Sciences, focuses on research by faculty in the African American Studies Program.

**African American Studies Courses**

**For Undergraduates**

**129:008 Literature of the African Peoples**
Works in English by authors of African descent from America, continental Africa, the Caribbean. Prerequisite: 08G:001. GE: Foreign Civilization & Culture, Humanities. Same as 08G:014.

**129:029 First-Year Seminar**
Small discussion class; topics chosen by instructor. Prerequisite: first-year standing.

**129:050 Introduction to African American Religions**
GE: Cultural Diversity, Humanities. Same as 032:034.

**129:060 Introduction to African American Society**
Social and cultural history of African Americans through framework of general works in anthropology, sociology, history. GE: Cultural Diversity, Social Sciences.

**129:061 Introduction to African American Culture**
Interdisciplinary look at Black culture in the United States through significant contributions of the humanities (music, art, literature, drama, philosophy) to development of Black culture. GE: Cultural Diversity, Humanities. Same as 045:030.

**129:062 Foundations in African American Studies**
Introduction to interdisciplinary methods in African American studies; overview of the discipline's central branches, including literature, religion, media and performing arts, history, political science. GE: Cultural Diversity.

**129:063 African American Islam/International Perspective**
Same as 032:063.

**129:065 Introduction to African American History**
GE: Cultural Diversity. Same as 16A:065.

**129:069 Selected African American Authors**
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:069.

**129:076 Race, Ethnicity, and Media**
Principal debates in media criticism about representation, circulation, and commodification of popular images of race and ethnicity. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 036:076.

**129:079 Race and Ethnicity in Sport**
Structural and ideological barriers to racial and ethnic equality in sport, with focus on African American sport experiences; historical and contemporary issues, media representations. Same as 028:079.
129:095 Honors Project
Independent research and writing on interdisciplinary topic. Prerequisite: consent of instructor.

For Advanced Undergraduate and Graduate Students

129:116 African American Literature Before 1900
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature. Same as 008:116.

129:117 African American Literature Since 1900
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:117.

129:119 African Literature
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:119.

129:122 African Americans and the Media
3 s.h.
GE: Cultural Diversity. Same as 019:165.

129:123 Twentieth-Century African American Religion: Civil Rights to Hip-Hop
3 s.h.
 Twentieth-century African American religious history; major political and cultural movements, such as civil rights, black power, black feminism/womanism, hip-hop. Same as 032:126.

129:124 Black Culture and Experience
3 s.h.
 Topics vary.

129:128 Racial Narrative and American Performance
3 s.h.
Same as 010:128, 048:128.

129:130 African American Literary/Rhetorical Criticism I
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:160, 010:132.

129:131 African American Literary/Rhetorical Criticism II
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: 008:160 or 010:132 or 129:130. Same as 008:166, 010:133, 160:162.

129:137 History of Slavery in the U.S.A.
3-4 s.h.
Origins, development; focus on labor, family, gender, community, culture, resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as 16A:147.

129:138 African and African American Interactions
3 s.h.
The slave trade, its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Afrocentrism, its African critics. Same as 16W:119.

129:140 Topics in African American Studies
arr.
Different topic each semester.

129:153 The Civil Rights Movement
3 s.h.
History of the American civil rights movement. Same as 045:153.

129:158 Topics in African Cinema
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:157.
129:161 Insurgency and Globalization of Discontent
Political theories of revolutionary African American and Japanese intellectuals, artists, and activists; how the theories have influenced social justice movements. Same as 039:161.

129:162 Midwest African American Literature and Culture 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:162.

129:163 Pre-Colonial African History 3 s.h.
Africa to 1880; oral tradition, other sources; political development, ecological change, slavery and slave trade. GE: Foreign Civilization & Culture. Same as 16W:120.

129:164 African History Since 1880 3 s.h.
Africa in colonial, post-colonial period; economics, political structures of colonialism; social change, political life in the 20th century. GE: Foreign Civilization & Culture. Same as 16W:121.

129:175 African American Theatre I 3 s.h.
Works by African American playwrights and relevant historical documents, Africa through Black Renaissance; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as 049:190.

129:176 Special Topics 3 s.h.
Topics, issues, and debates about production or representation of popular images of race and ethnicity. Same as 036:159.

129:179 Independent Study arr.
Topics vary. Prerequisite: consent of instructor.

129:181 African American Autobiography 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:186, 049:186.

129:182 Free Style Writing: Poetry, Plays, and Performances 3 s.h.
Creative writing lab experience in reading, writing, and performing poetry and short plays; expansion of students' horizons of the self; arc of innovation in African American literature from Harlem Renaissance to present, with texts from Langston Hughes and Zora Neale Hurston to Saul Williams and Jill Scott; role of the artist in society and as outsider and insider; shifting perspectives on race, gender, class; musical influences and models, from blues to house music; sensuality, spirituality; artistic reflections on the cultural moment; effects of these on literary form and performance style; students create and perform a work for an audience. Same as 049:182.

129:183 Black Feminist Tradition and Culture 3 s.h.
Survey of selected theoretical texts chronicling shifting perspectives on feminism; comparative interdisciplinary survey of artistic works that reflect such perspectives. Same as 049:183.

129:184 Black Global Metropolis: Sexual History 3 s.h.
Dispersion of people of African descent into the global metropolis, from expansion of port cities in the slave trade to industrialization of European and American cities, decolonization of the Third World, and proliferation of spatial cultures in contemporary geography; readings cover prostitution in colonial New York, sexual danger in Victorian London, jazz age Chicago, sexual psyches in Algiers, black gay expatriates in Paris, social science in Harlem and Puerto Rico ghettos, black/white sex in Johannesburg, transsexuals in Rio de Janeiro, Black Panther sexual politics in urban America, global hip-hop sexualities. Same as 154:184, 16A:184.

129:186 African American Drama 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:186, 049:186.

129:187 African American History 1865-Present 3 s.h.
African American history since Reconstruction; survey of African American politics and society from Reconstruction to present. Same as 16A:188.
### 129:189 Themes in African American History
3 s.h.
Same as 16A:185.

### 129:191 African American Theatre II
3 s.h.
Works by African American playwrights and relevant historical documents, Black Renaissance to present; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as 049:191.

### 129:199 Senior Seminar
3 s.h.
African American, African, and African Caribbean culture and experience; comparative approach to synthesize students' earlier study. Prerequisites: African American studies senior standing and consent of instructor.

### For Graduate Students

#### 129:205 Gender and Race in Nineteenth-Century U.S.
arr.
Same as 016:205, 131:206.

#### 129:212 Advanced Readings in Black Culture
arr.
Textual, social, political analyses of works by Black authors.

#### 129:231 Crossing Borders Seminar
2-3 s.h.

#### 129:259 Seminar: Interpreting Oral Histories
arr.
Interpretations and methods applied by historians in various world regions to different forms of oral history, from old oral traditions to contemporary autobiographical testimony. Same as 016:259.

#### 129:287 Readings: African American Women's History
arr.
Same as 016:287, 131:287.

#### 129:312 Advanced Research in African American Culture
arr.
Seminar or independent study; for graduate students concentrating in African American studies. Prerequisite: basic African American studies courses.
The Aging Studies Program offers the Certificate in Aging Studies for undergraduate and graduate students and a minor in aging studies for undergraduates. The certificate program is designed to provide students with a multidisciplinary approach to gerontology. Its course work has been coordinated and sequenced to provide a broad background in aging for students from varied disciplines. All students plan their courses of study with their academic advisors in close cooperation with the Aging Studies Program advisor.

College of Liberal Arts and Sciences students also may pursue a Bachelor of Arts with an individually designed major in aging studies through the college's Interdepartmental Studies Program. See "B.A. with Aging Studies Focus" below.

Certificate

The Certificate in Aging Studies requires 21 s.h. The program is open to undergraduate, graduate, and nondegree students with aging-related career interests and needs. A student may not be awarded both a minor and a certificate in aging studies.

The certificate's required 21 s.h. must be earned in approved aging-related courses, including at least 18 s.h. in courses numbered 100 and above. Aging-related course work is defined as work that focuses principally on older persons, the aging process, or interventive methods or techniques whose target is the older adult or aging. Certificate students must complete a minimum of 15 s.h. in aging studies at The University of Iowa. A g.p.a. of at least 2.00 is required in all course work applied toward the certificate.

Certificate requirements include a core curriculum of six courses and an additional 2-5 s.h. of elective course work from the list of approved aging-related courses. Students may take core courses before or concurrently with other courses in the program. They should complete the core courses before taking the research project or the practicum course.

With the approval of their major department, students may apply certificate course work to their major or professional program of study.

Transfer credit is determined individually. Students who wish to apply credit earned at other institutions to the aging studies certificate should consult the aging studies coordinator.

Students in good standing should contact the Aging Studies Program advisor to notify the advisor of their intent to pursue the certificate and to develop an appropriate study plan. The aging studies advisor works with students and their major advisors to shape a study plan that complements their academic program and career interests. The aging studies advisor recommends a sequence in which course work should be taken and keeps a record of each student's approved program and progress.

Completion of the Certificate in Aging Studies is noted on the student's transcript.

Individuals who have earned a bachelor's degree at The University of Iowa may return to complete the requirements for the certificate. Graduate students and other students who hold a bachelor's degree are awarded the certificate when they have completed all certificate requirements.

The certificate requires the following course work.

CORE COURSES

All certificate students must complete the following six core courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>153:108</td>
<td>Basic Aspects of Aging (GE: social sciences)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:135/042:135</td>
<td>Global Aging: Cultural Comparisons</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:150/031:050</td>
<td>Psychology of Aging</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:160</td>
<td>Biology of Aging</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:190/042:190</td>
<td>Field Work in Gerontology</td>
<td>3-6 s.h.</td>
</tr>
</tbody>
</table>

153:130 Aging Studies Colloquium—Undergraduate 1 s.h.
or
153:230 Aging Studies Colloquium (graduate students) 1 s.h.
ELECTIVES

Students must complete an additional 2-5 s.h. of elective course work from the following lists of approved aging-related courses. Practicum and/or research courses offered by other academic departments may be accepted for elective credit if the content or focus is on aging. Students who wish to apply course work from other departments should consult the Aging Studies Program coordinator.

Psychological Aspects of Aging

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:139</td>
<td>Music Therapy Techniques: Adult Clients</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:147</td>
<td>Special Topics in Anthropology (cross-cultural perspectives on death, dying, bereavement)</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>153:030/096:030</td>
<td>Human Development and Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:150/031:050</td>
<td>Psychology of Aging</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Biological/Health Aspects of Aging

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:530</td>
<td>Seminar: Communication Disorders and Aging</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>028:036</td>
<td>Physical Activity Through the Life Span</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:133/028:133</td>
<td>Nutrition Through the Life Span</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:145/112:145</td>
<td>Introduction to Geriatric Dentistry</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>153:160</td>
<td>Biology of Aging</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:165/003:165</td>
<td>Communication Disorders and Aging</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>153:166/028:166</td>
<td>Exercise for Special Populations</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>153:410/096:410</td>
<td>Nursing Research of Biological Phenomena and Interventions for the Elderly</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:420/096:420</td>
<td>Geriatric Mental Health Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:430/096:430</td>
<td>Nursing Research in Sociocultural Phenomena and Interventions for the Elderly</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Social and Cultural Aspects of Aging

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>034:269</td>
<td>Seminar: Selected Topics in Family Sociology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:153/042:153</td>
<td>Programs and Services for Aging Adults</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:168/169:168</td>
<td>Aging and Leisure</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:185/042:185</td>
<td>Social Policy and the Elderly</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:211/042:211</td>
<td>Individual and Family Development: Life Span</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>153:219/042:219</td>
<td>Aging and the Family</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

Minor

Undergraduate students in the Colleges of Liberal Arts and Sciences, Education, Engineering, Nursing, or the Tippie College of Business may complete the minor in aging studies. The minor must be approved by the student's college or major department. A student may not be awarded both a minor and a certificate in aging studies.

The minor in aging studies requires a minimum of 15 s.h. in aging-related course work, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, courses numbered above 100 are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The required introductory core course 153:108 Basic Aspects of Aging must be included in the 12 s.h. of advanced course work. Courses must be approved by the Aging Studies Program.

B.A. with Aging Studies Focus

Students in the College of Liberal Arts and Sciences who would like to design an individualized program in aging studies leading to a Bachelor of Arts must apply and be accepted to the Interdepartmental Studies Program. Entry to the program requires approval of a plan of study that includes 36 s.h. of upper-level course work. For more information, see Interdepartmental Studies in the Catalog.

Aging Studies Courses
153:030 Human Development and Behavior
Normal developmental transitions experienced by individuals and family systems throughout the lifespan, including physical, cognitive, and social-emotional development. Prerequisite: 031:001. Same as 096:030.

153:108 Basic Aspects of Aging
Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Prerequisites: (for 042:108) 031:001 or 034:001, and sophomore or higher standing. GE: Social Sciences. Same as 042:108, 096:108, 169:108.

153:110 Growing Old in a New Age

153:119 Writing for Interdisciplinary Audiences
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 024:119, 08N:119, 154:119.

153:124 Independent Study in Gerontology
Individual projects and/or research. Prerequisite: consent of instructor.

153:130 Aging Studies Colloquium--Undergraduate
Current trends, practices, and research in gerontology and geriatrics. Prerequisite: aging studies enrollment.

153:133 Nutrition Through the Life Span
How body processes and nutritional needs change with age and the physiological state; effects of food-drug-medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition-related problems. Prerequisites: (for 028:133) 028:038 and health and sport studies major. Prerequisite: (for 153:133) 028:038. Same as 028:133.

153:135 Global Aging: Cultural Comparisons
Social construction of older adulthood across cultures; social privilege, with emphasis on age privilege and ageism. Same as 042:135.

153:144 Medicare and Medicaid Policy
Health policies most pertinent to Americans over age of 65. Same as 174:144.

153:145 Introduction to Geriatric Dentistry
Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect oral health treatment of dental diseases and patient management. Prerequisite: D.D.S. enrollment or completion of dental hygiene program. Same as 112:145.

153:146 Health Promotion for Older Adults
Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing the decline caused by chronic conditions to extend independent, rewarding lives. Same as 096:146, 169:146.

153:147 End-of-Life Care for Adults and Families
End-of-life issues in care of adults, older adults, and their families. Prerequisites: 096:135 and 096:136, or R.N. student standing, or consent of instructor. Same as 046:146, 050:147, 096:147.

153:150 Psychology of Aging
The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisite: 031:001 or equivalent. Same as 031:050.

153:153 Programs and Services for Aging Adults
Major gerontological programs and services, practitioners’ need for basic aging-practice competence; aging network; income, employment, health maintenance programs; continuum of care (preventive and well-elderly services, in-home services, community-based services, institutional care); assessment; major elder health issues, informal care; end-of-life care. Same as 042:153.

153:160 Biology of Aging

Biogerontology; definition of aging and senescence, biological theories of aging, demographics, model systems foraging, premature aging syndromes, aging of organ systems in humans.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>153:161</td>
<td>Rhetorical Issues in Health Care</td>
<td>3 s.h.</td>
<td>Role of rhetoric in health care practice, decisions, and ethics; rhetorical production of patient and professional selves in health care; varied practices, diverse perspectives, and situated production of medical and health care knowledge. Prerequisite: satisfactory completion of rhetoric general education requirement. Same as 010:161, 160:161.</td>
</tr>
<tr>
<td>153:165</td>
<td>Communication Disorders and Aging</td>
<td>2 s.h.</td>
<td>Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered spring semesters of even years. Same as 003:165.</td>
</tr>
<tr>
<td>153:166</td>
<td>Exercise for Special Populations</td>
<td>1 s.h.</td>
<td>Laboratory experiences in development and implementation of exercise testing and prescription for special populations, including children, elders, and individuals with chronic diseases. Pre- or corequisite: 028:138. Same as 028:166.</td>
</tr>
<tr>
<td>153:168</td>
<td>Aging and Leisure</td>
<td>3 s.h.</td>
<td>Status of the well elderly in relation to retirement issues, use of free time, and factors that support leisure activity; leisure services in long-term care. Same as 169:168.</td>
</tr>
<tr>
<td>153:185</td>
<td>Social Policy and the Elderly</td>
<td>3 s.h.</td>
<td>Public social policies, their affect on well-being of elderly, including women and minorities; U.S. and other nations’ policies. Prerequisites: 042:143, an introductory course on aging, and junior or higher standing; or consent of instructor. Same as 042:185.</td>
</tr>
<tr>
<td>153:186</td>
<td>Death/Dying: Issues Across the Life Span</td>
<td>3 s.h.</td>
<td>Introduction to death and dying; historical, cultural, societal, personal perspectives. Prerequisite: admission to School of Social Work or Aging Studies Program, or consent of instructor. Same as 042:186.</td>
</tr>
<tr>
<td>153:190</td>
<td>Field Work in Gerontology</td>
<td>arr.</td>
<td>Opportunities for students in various disciplines to relate their areas of study to elderly and aging; interdisciplinary relationships, approaches to meeting needs of elderly. Prerequisite: consent of instructor. Same as 042:190.</td>
</tr>
<tr>
<td>153:195</td>
<td>Introduction to Nursing Homes</td>
<td>3 s.h.</td>
<td>Overview of nursing home roles in context of long-term care system, characteristics of nursing home residents. Same as 042:195.</td>
</tr>
<tr>
<td>153:211</td>
<td>Individual and Family Development: Life Span</td>
<td>3 s.h.</td>
<td>Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Same as 042:211.</td>
</tr>
<tr>
<td>153:219</td>
<td>Aging and the Family</td>
<td>2-3 s.h.</td>
<td>Research related to aging and the family; intergenerational relations, marital status in later life, diversity of older families, caregiving, elder abuse, policy issues. Same as 042:219.</td>
</tr>
<tr>
<td>153:235</td>
<td>Object Relations in Social Work Practice</td>
<td>2 s.h.</td>
<td>Theories, practice skills; focus on object relations theory and therapy as a bridge between systemic perspective and working with individuals. Prerequisites: 042:250 and completion of foundation courses, or consent of instructor. Same as 042:235.</td>
</tr>
</tbody>
</table>
153:261 Epidemiology of Aging 1-2 s.h.
Epidemiologic methods for studying health and social problems of older persons; applications including research and public health practice and policy. Offered spring semesters. Prerequisite: 173:140. Same as 173:261.

153:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.
Analysis, evaluation of research on health of elderly, aging process; emphasis on methodological issues, instrumentation appropriate for study of biological phenomena. Prerequisite: (for 153:410) Ph.D. enrollment. Same as 096:410.

153:420 Geriatric Mental Health Research 3 s.h.
Analysis, evaluation; emphasis on program evaluation, geriatric mental health services research, methodological issues. Prerequisite: (for 153:420) Ph.D. enrollment. Same as 096:420.

153:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Prerequisite: (for 153:430) Ph.D. enrollment. Same as 096:430.
American Indian and Native Studies

Coordinator: Michelene Pesantubbee
Associate professors: Michelene Pesantubbee (Religious Studies/American Indian and Native Studies), Phillip Round (English/American Indian and Native Studies)
Assistant professor: Margaret Beck (Anthropology)
Undergraduate nondegree programs: Certificate, Minor in American Indian and Native Studies
Graduate nondegree program: Certificate in American Indian and Native Studies
Web site: http://www.uiowa.edu/~interdi/ainsp/

The American Indian and Native Studies Program (AINSP) is an interdisciplinary program that focuses on the histories, cultures, languages, literatures, and contemporary legal and political issues of Native Americans of the United States and other indigenous peoples of the Americas.

By taking AINSP courses, students begin to understand historical and contemporary social issues among indigenous peoples of the Americas. They acquire expertise for jobs involving cross-cultural work through experience with ethnic, social, and political diversity. They also gain a background for more specialized or advanced work in a variety of social science disciplines, including anthropology, psychology, geography, economics, education, history, and political science.

A certificate in AINSP complements degrees in professional areas such as health care, business, social work, and law.

Undergraduate Programs

The program offers the Certificate in American Indian and Native Studies and a minor in American Indian and native studies.

Certificate

The undergraduate Certificate in American Indian and Native Studies requires a minimum of 20 s.h. in courses chosen from the list of approved AINSP courses, with a g.p.a. of at least 2.00. Students plan their programs in close cooperation with AINSP faculty advisors. Course work must include the following.

149:049 Introduction to American Indian and Native Studies 3 s.h.
149:101 American Indian and Native Studies Seminar (must be taken two semesters for a total of 2 s.h.) 1 s.h.
149:102 Introduction to American Indian History and Policy 3 s.h.
Additional course work, including courses selected from the list of approved AINSP courses (see "Associated Courses") 12 s.h.

Courses applied toward the AINSP certificate also may be used to complete the General Education Program or the requirements for a major or a minor. Students may count a maximum of 6 s.h. of course work from their major toward the AINSP undergraduate certificate. The certificate is awarded only upon completion of a bachelor's degree. Holders of Iowa baccalaureate degrees may return to complete the requirements for a certificate. Students may not earn both a certificate and a minor in American Indian and native studies.

Minor

The minor in American Indian and native studies requires a minimum of 15 s.h., including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, courses numbered above 100 are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include the following.

149:049 Introduction to American Indian and Native Studies 3 s.h. or
149:102 Introduction to American Indian History and Policy 3 s.h.
149:101 American Indian and Native Studies Seminar 1 s.h.
Additional courses, including those selected from the list of approved AINSP courses (see "Associated Courses") 11 s.h.
Students may not apply more than 6 s.h. of course work used to complete a major toward the AINSP minor.

Cultural Experience

The program highly recommends that students have an in-depth American Indian cultural experience, usually through study or volunteer work, before they complete their undergraduate requirements. Consult AINSP faculty advisors about available options.

Graduate Program

The program offers the Certificate in American Indian and Native Studies for graduate students.

Certificate

The graduate Certificate in American Indian and Native Studies requires a minimum of 20 s.h. in courses numbered 100 or above chosen from the list of approved AINSP courses. Students must maintain a g.p.a. of at least 3.00 in AINSP courses counted toward the certificate. Course work must include the following.

149:102 Introduction to American Indian History and Policy 3 s.h.
149:299 Independent Study Project 2 s.h.
Additional courses chosen from the list of approved AINSP courses (see "Associated Courses") 15 s.h.

Students may count a maximum of 6 s.h. of course work from their major field of study toward the AINSP graduate certificate.

Graduate students must apply to the academic coordinator to be admitted to the AINSP graduate certificate program. Students who earned an undergraduate certificate in the program may not receive a graduate certificate.

Associated Courses

In addition to those listed below, courses concerned in part with American Indians or with issues relevant to American Indians may be used as electives to satisfy requirements for the undergraduate certificate, the minor, and the graduate certificate, subject to AINSP faculty approval.

For course descriptions, see the appropriate department sections of the Catalog.

ANTHROPOLOGY

113:020 Introduction to Midwestern Prehistory 3 s.h.
113:117 The Maya: Archaeology and Ethnohistory 3 s.h.
113:163 Archaeology of Mesoamerica 3 s.h.
113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
113:167 North American Archaeology 3 s.h.

ART AND ART HISTORY

01H:104 American Indian Art 3 s.h.
01H:105 Art of Pre-Columbian America 3 s.h.
01H:199 Topics in Art History (when content is appropriate) 3 s.h.

EDUCATION

07B:123 History of Ethnic/Minority Education 3 s.h.

ENGLISH

008:153 Native American Literature 3 s.h.
008:185 Native American Autobiography 3 s.h.
American Indian and Native Studies Courses

149:005 *Literatures of Native American Peoples* 3 s.h.
Genres of Native American literature, including oral literature; focus on written literature (fiction, essays, poetry, drama). Prerequisite: 08G:001. GE: Cultural Diversity, Humanities. Same as 08G:005.

149:020 *Introduction to Midwestern Prehistory* 3 s.h.
Prehistoric cultural sequence of Iowa viewed against background of North American prehistory; current and future research. Same as 113:020.

149:049 *Introduction to American Indian and Native Studies* 3 s.h.
Themes and methodologies in the study of American Indians and other indigenous peoples; approaches from anthropology, history, law, literature, other disciplines. Offered fall semesters. GE: Cultural Diversity. Same as 045:049.

149:060 *Introduction to Native American Religions* 3 s.h.
GE: Cultural Diversity. Same as 032:060.

149:065 *Sex, Gender, and Nature in the Culture of Native America* 3 s.h.
Historical notions of gender, sexuality, and marriage among selected Native American cultures; how these beliefs conflicted with colonial European Christian beliefs; native peoples' sacred stories of creation and human origins compared with Euro-Christian perspectives; how Europeans' sexual and gender violence toward native peoples served as a tool of colonial oppression and conquest.

149:070 *Indians and Allies* 3 s.h.
Social and cultural issues facing Native Americans.

149:076 *American Indian Environmentalism* 3 s.h.
Same as 032:076.

149:080 *American Indian Activism* 3 s.h.
Social/religious/political movements among indigenous people of North America, 18th century to present. Same as 032:082.

149:082 *American Indian Women: Myth, Ritual, and Sacred Power* 3 s.h.
Participation of women and girls in native religious traditions; obstacles to knowing and understanding native women's religious roles and experiences. Same as 032:078.

149:085 *Native American Material Culture* 3 s.h.
Overview of American collectors and collections of Indian objects, prehistoric to contemporary. Same as 045:085.

149:099 *Powwow Culture and History* 3 s.h.
Service learning experience working on the American Indian powwow at The University of Iowa; academic study of history and culture of Native American powwows.

149:101 *American Indian and Native Studies Seminar* 1 s.h.
Historical and contemporary issues.

149:102 *Introduction to American Indian History and Policy* 3 s.h.
Same as 16A:110.

149:110 *Native Peoples of North America* 3 s.h.

149:113 Native American Literature 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:153.

149:115 Native North America I: Precontact-1789 3 s.h.
Same as 16A:115.

149:116 Native North America II: 1789-Present 3 s.h.
Same as 16A:116.

149:121 Health of Indigenous Peoples 3 s.h.
Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 113:121, 152:121.

149:158 Native American Women and Religious Change 3 s.h.
Native women's diverse experiences and their roles in native societies, examined through contact experiences between native and nonnative peoples; changes in women's roles in context of interactions between native people, missionaries, European colonists, and Americans; approaches to re-imaging women's early contact roles presented in cultural narratives, archaeology, history, ethnography, and missionary records. Same as 032:158, 131:159.

149:159 Southwestern Archaeology 3 s.h.
Anthropological overview of prehistoric cultures of the American Southwest; emphasis on understanding archaeological arguments concerning major processes in the past. Same as 113:159.

149:164 American Indian/First Nations Women 3 s.h.

149:167 North American Archaeology 3 s.h.
Prehistoric cultural development north of Mexico from initial occupation to European contact and conquest; emphasis on dynamics of culture change. Same as 113:167.

149:168 American Indians in the Arts 3 s.h.
Creation and impact of American Indian representation in literature, painting, film, music, other arts; native peoples' roles in the creative process.

149:178 Federal Indian Law 3 s.h.
Specialized body of law that allocates power and authority in Indian country and has grown up around Native American peoples and their reservations; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Same as 091:303.

149:185 Native American Autobiography 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:185.

149:195 Directed Cultural Experience arr.
In-depth American Indian cultural experience, usually study or volunteer work, under supervision of an AINSP faculty member.

149:197 Independent Study arr.

149:199 Special Topics: American Indian and Native Studies arr.
American Indians and other indigenous peoples; concepts, problems, issues. Prerequisite: consent of instructor.

Same as 016:243.
149:250 CIC American Indian Studies Graduate Seminar 3 s.h.
Topic varies. Taught four weekends per semester at The Newberry Library, Chicago. Prerequisites: graduate standing and CIC university enrollment.

149:299 Independent Study Project
Repeatable. Prerequisite: consent of instructor.
American Sign Language

Chair: Richard Hurtig
Professor: Richard Hurtig
Associate professor: Douglas Baynton
Adjunct instructor: Tim Sheets
Undergraduate nondegree programs: Certificate in American Sign Language and Deaf Studies; Minor in American Sign Language
Web site: http://www.uiowa.edu/~asliowa

The American Sign Language Program offers a four-semester course sequence in American Sign Language (ASL), the undergraduate certificate in American Sign Language and Deaf Studies, and courses for teacher licensure. Classroom instruction is supplemented by video materials and interactive software in the Language Media Center.

Undergraduate students may use the American Sign Language sequence 158:011 American Sign Language I, 158:012 American Sign Language II, 158:013 American Sign Language III, and 158:014 American Sign Language IV to complete the foreign language component of the College of Liberal Arts and Sciences General Education Program.

Certificate

The Certificate in American Sign Language and Deaf Studies requires 34 s.h. The interdisciplinary program teaches students about the history, culture, and language of the American deaf community.

Through the study of American Sign Language, students come into contact with a language that is semantically and grammatically very different from their own and that operates in a different sensory channel as well. Students who undertake the program encounter a rich and complex culture, including a rapidly growing literature recorded on film and videotape since the early 20th century.

The certificate program permits students to link study in three or more disciplines into an organized investigation of a language and culture. The Certificate in American Sign Language and Deaf Studies serves as a valuable confirmation for employers and graduate schools of a student's specialized knowledge in the field.

Any undergraduate student pursuing a degree from The University of Iowa may earn the certificate. Holders of University of Iowa bachelor's degrees who are not enrolled in graduate or professional programs may return to complete the certificate.

Students may earn the Certificate in American Sign Language and Deaf Studies, or a minor in American Sign Language, but not both.

Students may use each course required for the certificate to satisfy only one certificate requirement. But they may use a course to satisfy both a certificate requirement and a requirement for a major or for a minor in another discipline.

Courses used to satisfy certificate requirements may not be taken pass/nonpass.

A maximum of 6 s.h. of transfer work may be accepted toward certificate requirements, with the approval of the American Sign Language and deaf studies advisor.

REQUIRED COURSES

The Certificate in American Sign Language and Deaf Studies requires completion of the sequence 158:011, 158:012, 158:013, and 158:014, or demonstration of equivalent proficiency, and a total of at least 18 s.h. of approved courses in three or more different disciplines. At least 6 s.h. must be chosen from the following core courses.

158:100/16A:104 History of the American Deaf Community 3-4 s.h.
158:101 Topics in Deaf Studies 3 s.h.
158:102 American Deaf Culture 3 s.h.
158:103 American Sign Language Literature 3 s.h.
158:104 Issues in ASL and Deaf Studies 3 s.h.
158:106 Introduction to ASL Interpreting 3 s.h.
158:110/07U:110 Teaching Deaf and Hard of Hearing Students 3-4 s.h.
158:111 American Sign Language Conversation 3 s.h.

Certificate students also complete at least four courses (12 s.h.) in two or more of the following disciplines. They may petition to have courses that are not listed below approved for certificate requirements.

Anthropology
113:014 Language, Culture, and Communication 3 s.h.
113:173/103:150 Language and Gender 3 s.h.

Communication Sciences and Disorders

003:117 Psychology of Language 3 s.h.
003:185 Hearing Loss and Audiology 3 s.h.
003:244 Rehabilitative Audiology 3 s.h.

Education

07U:100 Foundations of Special Education (requires admission to the Teacher Education Program) 3 s.h.
07U:110/158:110 Teaching Deaf and Hard of Hearing Students 3-4 s.h.
07U:133 The Culturally Different in Diverse Settings 3 s.h.

History

16A:104/158:100 History of the American Deaf Community 3-4 s.h.
16A:106 Disability in American History 3 s.h.

Linguistics

103:011 Language and Society 3 s.h.
103:100 Introduction to Linguistics 3 s.h.
103:150/113:173 Language and Gender 3 s.h.

Minor

The minor in American Sign Language requires 15 s.h. of ASL course work, including 12 s.h. in courses numbered 100 or above taken at The University of Iowa, excluding 158:106 Introduction to ASL Interpreting, which does not count toward the minor. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include 158:014 or demonstrated equivalent proficiency. Students may count a maximum of one course taught in English toward the minor (158:100 History of the American Deaf Community or 158:110 Teaching Deaf and Hard of Hearing Students) and must enroll in the 4 s.h. option with discussion conducted in ASL.

Hearing Impaired Endorsement for Teachers

The American Sign Language Program offers courses that fulfill requirements for the Hearing Impaired Endorsement offered by the College of Education. The University of Iowa currently is the only institution in Iowa that offers this endorsement program. Holders of the endorsement are authorized to serve deaf and hard-of-hearing students from birth to age 21. Applicants to the program must hold or be in the process of completing requirements for an elementary or secondary teaching license.

American Sign Language Courses

158:011 American Sign Language I
Conversational skills, basic grammar of ASL; introduction to the ASL cultural community through readings, videos. Taught in American Sign Language. First in a four-semester sequence. GE: Foreign Language First Level Proficiency.

158:012 American Sign Language II
Continuation of 158:011; emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in American Sign Language. Prerequisite: 158:011 or consent of instructor. GE: Foreign Language Second Level Proficiency.

158:013 American Sign Language III
Continuation of 158:012; emphasis on ASL grammar and syntax; focus on culture through readings, videos. Taught in American Sign Language. Prerequisite: 158:012 or consent of instructor. GE: Foreign Language Second Level Proficiency.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>158:014</td>
<td>American Sign Language IV</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Continuation of 158:013. Taught in American Sign Language. Prerequisite: 158:013 or consent of instructor. GE: Foreign Language Fourth Level Proficiency.</td>
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<tr>
<td>158:015</td>
<td>Fingerspelling and Numbers I</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Development of expressive and receptive American Sign Language fingerspelling, loan sign, and number skills based on word, phrase, and number recognition. Eight weeks. Prerequisite: 158:011.</td>
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<tr>
<td>158:016</td>
<td>Fingerspelling and Numbers II</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Development of expressive and receptive American Sign Language fingerspelling, loan sign, and number skills based on word, phrase, and number recognition. Eight weeks. Prerequisite: 158:015.</td>
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<tr>
<td>158:100</td>
<td>History of the American Deaf Community</td>
<td>3-4 s.h.</td>
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<td></td>
<td>Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Taught in American Sign Language. Prerequisite: 158:014 or consent of instructor. Same as 16A:104.</td>
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<tr>
<td>158:101</td>
<td>Topics in Deaf Studies</td>
<td>3 s.h.</td>
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<td></td>
<td>Current topics in deaf studies; skill development in communicative fluency in ASL. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.</td>
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<tr>
<td>158:102</td>
<td>American Deaf Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Cultural practices, beliefs, values of the American deaf community. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.</td>
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<tr>
<td>158:103</td>
<td>American Sign Language Literature</td>
<td>3 s.h.</td>
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<td>Introduction to the world of ASL literature, as recorded on videotape or film and in live performance; traditional folklore, story telling, poetry, drama, oratory, jokes, and nonfiction narrative; analysis of genres in their social and cultural contexts as expressions of deaf experience; how historical and current issues in deaf culture are represented in literary form. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.</td>
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<tr>
<td>158:104</td>
<td>Issues in ASL and Deaf Studies</td>
<td>3 s.h.</td>
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<td></td>
<td>Current issues in American Sign Language and the American deaf community, such as linguistics, culture, literacy. Pre- or corequisite: 158:014 or consent of instructor.</td>
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<tr>
<td>158:106</td>
<td>Introduction to ASL Interpreting</td>
<td>3 s.h.</td>
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<td>Introduction to sign language interpreting; history and current nature of the field, available employment opportunities, certification, training, ethics. Pre- or corequisite: 158:013.</td>
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<tr>
<td>158:108</td>
<td>Independent Study</td>
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<td></td>
<td>An American Sign Language/deaf studies topic; individual study.</td>
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<tr>
<td>158:110</td>
<td>Teaching Deaf and Hard of Hearing Students</td>
<td>3-4 s.h.</td>
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<tr>
<td></td>
<td>Issues in deaf education--management techniques, communication strategies, teaching strategies, instructional materials, hands-on activities, assessments, parent involvement; use of technology, ethnic and cultural diversity, classroom management, pre-reading techniques, literacy development, educational program options. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor. Same as 07U:110.</td>
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<tr>
<td>158:111</td>
<td>American Sign Language Conversation</td>
<td>3 s.h.</td>
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<td></td>
<td>Improvement of receptive and expressive conversational ASL skills through small group discussion, class presentations. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor.</td>
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</tbody>
</table>
American Studies

Chair: Kim Marra
Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Kim Marra (Theatre Arts/American Studies), Horace A. Porter (F. Wendell Miller Professor of English and American Studies), Lauren Rabinovitz (American Studies/Cinema and Comparative Literature), John Raeburn (American Studies/English)
Professors emeriti: Richard P. Horwitz, Albert E. Stone (American Studies/English)
Associate professors: Lafayette Adams (English/American Studies), Laura Rigal (English/American Studies), Harilaos Stecopoulos (American Studies/English), Nicholas Yáblon
Assistant professor: Deborah Whaley (American Studies/African American Studies)
Undergraduate degree: B.A. in American Studies
Undergraduate nondegree program: Minor in American Studies
Graduate degrees: M.A., Ph.D. in American Studies
Web site: http://www.uiowa.edu/~amstud

The Department of American Studies provides an interdisciplinary introduction to American culture, past and present. It helps students acquire a broad familiarity with the dynamics of cultural experience and explore aspects of life in the United States, such as popular and fine arts, institutions, values, gender and ethnic relations, artifacts, and the everyday life of a diverse citizenry.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in American studies.

Bachelor of Arts

The Bachelor of Arts in American Studies requires a minimum of 120 s.h., including 36 s.h. of work for the major. At least 24 s.h. for the major must be earned at The University of Iowa. American studies students must complete the College of Liberal Arts and Sciences General Education Program. The major in American studies stresses broad training in cultural analysis and communication. Although it offers no explicit vocational training, the program provides preparation for careers in business, education, government, journalism, or social service; for advanced study in the humanities, the social sciences, theology, or business; or for professional study in law or medicine. Internships can be arranged, through the University's Pomerantz Career Center.

A distinctive feature of the American studies major is the opportunity to develop broad training in cultural analysis as well as emphasis of particular interests within the study of American culture. With the help of their American studies advisors, students may elect to pursue one of three focus areas within American studies, or they may create an individual plan of study. Each focus area allows students to group courses in American studies and other departments around a specific interdisciplinary theme, topic, or set of social issues. Focus areas are described below.

Shortly after declaring a major, a student should meet with his or her faculty advisor to explore the range of course work available and to begin shaping an individual plan of study. By the student's second term in the major, the student and advisor should have agreed upon a plan of study and focus area for completing the major requirements.

The major in American Studies usually requires the following 12 courses. American studies courses must include 045:020, 045:025, and 045:090. Requirements are as follows.

American studies requirement: six core courses, including 045:020, 045:025, and 045:090 18 s.h.
American history: two courses 6 s.h.
Special interest focus area: four courses in American studies and/or other departments 12 s.h.

American Studies Focus Areas

Students should consult regularly with the Department of American Studies about courses offered by American studies and other departments that count toward each focus area. A maximum of two courses from a single department outside American studies may be counted toward any one focus area.

ETHNIC STUDIES, DIVERSITY, AND DIFFERENCES

Students choose this focus to develop interdisciplinary understanding of an individual ethnic and/or racial group (e.g., Latino/a studies, Jewish-American studies) or to examine broadly gender, race, sexuality, social class, region, national origins, and age in the United States. Emphasis is on the historic emergence of categories of social difference, especially as revealed in cultural practices and artifacts, geography and cityscapes, leisure, and popular expression.

AMERICAN ARTS, LITERATURE, AND POPULAR CULTURE

Students who choose this focus examine artistic creations to discover how they are shaped by cultural preconceptions, norms, and standards, and how in turn these expressive forms affect ongoing developments in cultural life. Emphasis
is on skills in the formal analysis of artistic artifacts, historical inquiry, and cultural contextualization.

AMERICAN SOCIETY, POLITICS, AND EVERYDAY LIFE

Students who choose this focus consider the dynamics of social change, the emergence and fate of political movements, and the forms and practice of everyday life in America. The area encompasses the tradition of revolution in America, the effects of technological and economic change, and the roles of the family, workplace, and community from the colonial era to the digital age.

INDIVIDUALLY DESIGNED FOCUS AREA

Individually designed focus areas may concentrate on an interdisciplinary topic, theme, group of people, or time period. Students who wish to design their own interdisciplinary focus area should consult with their American studies advisor for appropriate courses.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: declaration of the major, discussion of a plan of study with an American Studies advisor, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses from the plan of study and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses from the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The American studies honors program offers students the opportunity to pursue special interests in individual, in-depth research. Honors candidates must be members of the University of Iowa Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

Under the guidance of the undergraduate honors advisor, honors candidates define a research project. Project proposals ideally are made by the end of the junior year. Each candidate completes the project under the guidance of a supervising faculty member and may register for up to 6 s.h. in 045:095 Honors Project.

Results of the research project are presented in a senior essay to a committee of three faculty members, including the supervising faculty member, the honors advisor, and a third faculty member of the student's choice. (When the honors advisor is the supervising faculty member, the candidate may select the other two faculty members.) The candidate's committee may choose to hear an oral defense of the final project, usually in the 12th week of the last semester.

Minor

Students interested in a minor in American studies should consult American studies faculty members. The minor in American studies requires a minimum of 15 s.h. in American studies courses, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, courses numbered above 045:001 are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in American studies.

Master of Arts

The M.A. in American studies requires a minimum of 36 s.h. of graduate credit. It may be a terminal degree or preliminary to a Ph.D. in American studies or another discipline. The following courses are required.

Two other core courses in American studies 6 s.h.

M.A. students also select from five to eight additional courses relevant to a topic or period of cultural history. These courses may be grouped to address more than one topic and must be chosen from more than one discipline; they usually include at least two courses in American history and courses focusing on American diversity.

Master's degree candidates must perform satisfactorily in 045:400 Masters Preparation (3 s.h.), which includes a comprehensive examination on course work and basic concepts.

The M.A. also may be taken with thesis, for credit up to 6 s.h. Students should consult the program chair for details.

**Joint M.A./J.D.**

The Department of American Studies and the College of Law offer a joint Master of Arts/Juris Doctor. The M.A./J.D. provides a broad cultural context for the study and practice of law. Similar joint programs can be arranged in other professional fields, such as journalism and social work.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

**Doctor of Philosophy**

The Ph.D. program in American studies requires a minimum of 72 s.h. of graduate credit, which includes a core of American studies courses in interdisciplinary methods and substantial course work in two major fields. Course requirements are as follows.

Two or more additional core graduate courses in American Studies 6 s.h.
First major field (at least six courses) 18 s.h.
Second major field (at least six courses) 18 s.h.
Electives 6 s.h.
Dissertation (up to 18 s.h.)

American studies Ph.D. students are permitted considerable flexibility in planning a program, but they must meet certain basic requirements.

The introductory seminars 045:200 Theory and Practice of American Studies I and 045:201 Theory and Practice in American Studies II should be taken as early as possible, one during each of the first two years in residence. The additional American Studies graduate courses provide further models for interdisciplinary inquiry.

The two major fields may be defined to correspond with the student's strongest intellectual interests, but they must be interdisciplinary in concept and multidisciplinary in scope. Each must include course work from more than one of the University's departments and programs. They also should be designed to emphasize a generous but well-defined period of American cultural history; therefore, historical knowledge is essential to all doctoral plans of study. The two major fields may, and usually should, have an intellectual relationship with each other.

The program expects doctoral students to address the cultural diversity of American life in their course work and reading.

**ADMISSION TO PH.D. CANDIDACY**

Advising is important. Each doctoral student and his or her faculty advisor map out a coherent plan of study that reflects the student's particular interests in American cultural studies. The plan of study usually has been formulated tentatively by the end of the first year in residence. During the first semester of the second year, the student submits the plan to the entire faculty, which reviews it and meets with the student to discuss it. When the faculty accepts the plan of study, the student is admitted to Ph.D. candidacy. In the next three or four semesters, the candidate completes the established plan and begins to prepare for comprehensive examinations.

**COMPREHENSIVE EXAMINATIONS**

The comprehensive exam comprises three written portions and an oral examination.

The position paper is always written in advance of the rest of the exam and under the supervision of an American studies faculty member. In it, the candidate lays out his or her general approach to American cultural studies and provides an exemplification of that approach.
The remaining two written exams explore the candidate’s major fields; these are at least four hours long, but may be given on a take-home basis at the examiner’s discretion.

The oral examination covers material from the position paper and the two written exams.

**Thesis**

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on an interdisciplinary topic whose investigation involves more than one field or discipline.

**Internships**

Qualified graduate students in American studies can arrange internships with a number of local agencies, including the State Historical Society of Iowa, the Division of Historic Preservation, the University of Iowa Museum of Art, the Iowa Humanities Board, Brucemore, the Herbert Hoover Presidential Library and Museum, and the Putnam Museum of History and Natural Science. With special permission, candidates conducting research during such on-the-job training may receive academic credit through 045:320 Independent Study or 045:350 Material Culture Internship. Other internships with social agencies, government, or business also may be arranged.

**American Studies Courses**

**Primarily for Undergraduates**

**045:001 Understanding American Cultures**

The United States in historical, contemporary, and transnational perspective; social and cultural diversity and conflict in American life; debates on concepts of America, the American Dream, national culture, citizenship. GE: Cultural Diversity, Humanities.

**045:005 American Issues**

Representative issues: radio and American culture; cultural history of the Civil War era; American history, literature, culture.

**045:020 Sources for American Studies**

Variety of historic and contemporary sources, such as literature, law, photography, painting, film, TV, music, fashions, environments, events of everyday life.

**045:025 Diversity and American Identities**

History and variety of American identities, examined through citizenship, culture, social stratification; conflict and commonalities among groups according to race, ethnicity, gender, class, sexuality; how art, literature, music, film, photography, and other cultural artifacts represent diversity of identities.

**045:030 Introduction to African American Culture**

Interdisciplinary look at Black culture in the United States through significant contributions of the humanities (music, art, literature, drama, philosophy) to development of Black culture. GE: Cultural Diversity, Humanities. Same as 129:061.

**045:049 Introduction to American Indian and Native Studies**

Themes and methodologies in the study of American Indians and other indigenous peoples; approaches from anthropology, history, law, literature, other disciplines. Offered fall semesters. GE: Cultural Diversity. Same as 149:049.

**045:060 Sex and Popular Culture in the Postwar U.S.**

English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. GE: Cultural Diversity. Same as 008:050, 131:061, 154:060.

**045:065 Disney in America**

How the Walt Disney Corporation has influenced American cultural values, ideals, and experiences through its evolution from an animation company in the 1920s, to a theme park company and television producer in the 1950s, to a media conglomerate today; the corporation’s national importance, Hollywood’s contributions to the Depression and World War II, postwar urban and community planning, America’s changing leisure behavior, advertising and childhood, modern business history, exportation of American culture.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>045:075</td>
<td>American Popular Music</td>
<td>3 s.h.</td>
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<tr>
<td>045:080</td>
<td>American Political Humor</td>
<td>3 s.h.</td>
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<td></td>
<td>How political humor reflects and influences American attitudes regarding government institutions, elected officials, the democratic process; how humor works; examples from Revolutionary War present and from varied media, including cartoons, fiction, film, television, the Internet.</td>
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<tr>
<td>045:085</td>
<td>Native American Material Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Overview of American collectors and collections of Indian objects, prehistoric to contemporary. Same as 149:085.</td>
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<td>045:090</td>
<td>Seminar in American Cultural Studies</td>
<td>3 s.h.</td>
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<td>Interdisciplinary perspectives on a single theme or period.</td>
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<td>045:095</td>
<td>Honors Project</td>
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<td>Independent interdisciplinary research, writing.</td>
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<td>045:100</td>
<td>Independent Study</td>
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<td>Prerequisite: consent of instructor.</td>
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For Undergraduate and Graduate Students

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>045:105</td>
<td>Native Peoples of North America</td>
<td>3 s.h.</td>
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<tr>
<td>045:110</td>
<td>Gilded Age in America</td>
<td>3 s.h.</td>
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<td></td>
<td>End of the Civil War to turn of 20th century, through historical documents, literature, arts, and journalism; social, cultural, and political experience.</td>
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<td>045:115</td>
<td>American Culture of the 1930s</td>
<td>3 s.h.</td>
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<td>The Great Depression through historical records, literature, photography, movies, other arts; emphasis on expression of American life and thought, social and cultural experience.</td>
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<td>045:118</td>
<td>American Women Playwrights: 1776-Present</td>
<td>3 s.h.</td>
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<td>How women in the United States have expressed themselves in theatre since 1776; diversity of voices in works by African American, Asian American, Latina, Native American, European American, lesbian playwrights; female-authored drama and production in relation to concurrent male-authored traditions and socioeconomic, political, cultural phenomena. Same as 049:118.</td>
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<tr>
<td>045:123</td>
<td>American Literature and History</td>
<td>3 s.h.</td>
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<td></td>
<td>Examination of fictional histories (novels about history), their relationship to historical interpretation. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:123.</td>
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<tr>
<td>045:129</td>
<td>African American Cinema and Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>African American contribution to U.S. cinema in context of African American and American culture. Same as 048:129.</td>
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<tr>
<td>045:135</td>
<td>The Social Construction of Whiteness</td>
<td>3 s.h.</td>
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<td>Whiteness as a socially constructed racial category with material effects in everyday life; race as a category with salience in determining public policy, forming identities, and shaping people's actions; interdisciplinary approach using social history, philosophy, science, law, literature, autobiography, film, and the expressive arts.</td>
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<td>045:139</td>
<td>Race, Gender, Class, and the American Frontier</td>
<td>3 s.h.</td>
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<td>How race, gender, and class shape cross-cultural encounter and imperial expansion on regional frontiers; how frontiers are represented in literature, art, and film.</td>
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<td>045:140</td>
<td>American Subcultures</td>
<td>3 s.h.</td>
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</table>
Theories and practices of youth subcultures, mainly 1970s-1990s American (e.g., punks, skinheads, rappers); how youth subcultures, as popular generational forms of identification, intersect with other compelling markers of collective identity, especially race, class, gender, and sexuality; relevant texts from varied media and genres, including fiction, sociology, film, music, popular fashion, others.

**045:145 Immigration and American Culture**  
3 s.h.  
Immigrants and immigrant communities.

**045:147 American Disasters**  
3 s.h.  
Fault lines of American society and culture as exposed during catastrophe; history of American disaster investigated through methods from cultural history, visual theory, sociology, and media studies; varied disasters 1800 to present, including those involving cities (Chicago fire, San Francisco earthquake, Chicago heat wave), transportation (Titanic, Challenger, Columbia), and environment (Union Carbide and Bhopal, Exxon Valdez); causes of catastrophes; how Americans react and are drawn to catastrophe (e.g., disaster films, jokes); related topics, including technology, urbanism, race, class, apocalyptic religion, journalism, popular culture.

**045:150 Topics in American Cultural Studies**  
3 s.h.  
Special topics in American history, literature, culture.

**045:151 American Business Cultures**  
3 s.h.  
Historical and contemporary records of business and corporate experiences as part of American life and thought, including representations of business in American novels, movies, history, autobiography; emphasis on questions of relationships between gender, ethnicity, class, and sexuality and corporate identities.

**045:152 Fairs and Amusement Parks**  
3 s.h.  
Nineteenth- and twenty-first-century international expositions, amusement parks, and theme parks as cultural events of U.S. self-definition.

**045:153 The Civil Rights Movement**  
3 s.h.  
History of the American civil rights movement. Same as 129:153.

**045:154 Food in America**  
3 s.h.  
Cultural significance of production, distribution, and consumption of food in the United States.

**045:159 Representations of Revolution**  
3 s.h.  
Cultural politics of the revolutionary tradition in American culture from 1776 to 1976.

**045:160 American Cityscapes**  
3 s.h.  
Changing conventions in representation of American cities between the 1830s and 1930s; fiction and nonfiction, visual and audiovisual culture.

**045:163 American Ruins**  
3 s.h.  
Emergence and development of American fascination with ruins, from indigenous to urban-industrial remains; actual ruins and depiction of imagined ruins in art, literature, cinema.

**045:165 The Culture of Nature**  
3 s.h.  
How ideas of "the natural" and "the cultural" underpin beliefs, laws, and social practices; relationship between these two concepts; construction of notions of a natural world; idea of landscape and nature as a resource to be used, appreciated, articulated, or enjoyed; focus on analysis of relationships to animals.

**045:170 American Regional Identities**  
3 s.h.  
Regional identity across regions of the United States; literary, visual, and popular representations of regional identity.

**045:174 The American Vacation**  
3 s.h.  
Social history of vacations; cultural significance of contemporary patterns; focus on how experiences and meanings are shaped by race, class, gender. Same as 028:179.

**045:175 Revolution in American Culture**  
3 s.h.  
Emergence of revolutionary identities in American culture, 1776 to 1970.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>045:185</td>
<td>America in the World</td>
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<td>How U.S. activity influences lives worldwide.</td>
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<td>045:193</td>
<td>American Photography</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Popular and art photographs as expressions of American life, thought.</td>
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<td><strong>Primarily for Graduate Students</strong></td>
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<tr>
<td>045:200</td>
<td>Theory and Practice of American Studies I</td>
<td>3 s.h.</td>
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<td>Theories, methods, cases in culture studies; emphasis on social science approaches. Prerequisite: American studies</td>
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<td>graduate standing or consent of instructor.</td>
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<tr>
<td>045:201</td>
<td>Theory and Practice in American Studies II</td>
<td>3 s.h.</td>
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<td></td>
<td>Prerequisite: American studies graduate standing or consent of instructor.</td>
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<tr>
<td>045:230</td>
<td>Seminar: Performing Arts in American Culture</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>American theater, dance, music, and performance.</td>
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<tr>
<td>045:242</td>
<td>African American Cultural and Literary Criticism 1900-Present</td>
<td>3 s.h.</td>
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<td></td>
<td>Diverse range of African American cultural and literary criticism from 1900 to the present; the new negro; racial</td>
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<td>integration; race, gender, and sexuality; Black public intellectuals. Same as 008:242.</td>
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<tr>
<td>045:250</td>
<td>Seminar: Topics in American Studies</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>American cultural history; urbanization, mass media, pluralism, assimilation. Repeatable.</td>
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<tr>
<td>045:258</td>
<td>Seminar: Technology and American Culture</td>
<td>3 s.h.</td>
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<td>045:293</td>
<td>Seminar in American Visual Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Visual expression, its relation to cultural history. Repeatable.</td>
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<tr>
<td>045:299</td>
<td>American Studies Proseminar</td>
<td>1-2 s.h.</td>
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<tr>
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<td>Intensive reading on American cultural analysis topics; may include screenings, field trips, guest speakers, special</td>
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<td>events. Repeatable.</td>
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<tr>
<td>045:300</td>
<td>American Film and American Culture</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Relationships between film and culture as developed in a particular approach, period, subject. Same as 048:300.</td>
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<tr>
<td>045:320</td>
<td>Independent Study</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Repeatable. Prerequisite: consent of instructor.</td>
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</table>
| 045:350     | Material Culture Internship                                                                                      | 0-5 s.h.|```
Anthropology

Chair: Russell Ciochon

Professors: Thomas H. Charlton, Michael Chibnik, Russell Ciochon (Anthropology/Pediatric Dentistry), Ellen Lewin (Women's Studies/Anthropology), Toni Tripp Reiner (Nursing/Anthropology)

Professors emeriti: Melanie Dreher (Nursing/Anthropology/Community and Behavioral Health), Mac Marshall, Margery Wolf

Associate professors: James Enloe, Robert Franciscus, Laura Graham, Meena R. Khandelwal (Anthropology/Women's Studies), Katina Lillios, Sonia Ryang, Scott Schnell, Glenn Storey (Classics/Anthropology)

Associate professors emeriti: Marshall B. McKusick, Douglas Midgett

Adjunct associate professors: Kevin Kelly, Alfteta Monagan

Assistant professors: Nanette Barkey (Community and Behavioral Health/Anthropology), Margaret Beck, Adi M. Hastings, Matthew E. Hill, Erica Prussing (Anthropology/Community and Behavioral Health), Nelson Ting

Adjunct assistant professors: John Doershuk, Erik Filean, Stephen C. Lensink, Dongwang Liu, Melody K. Pope

Adjunct instructor: Shirley J. Schermer

Undergraduate degrees: B.A., B.S. in Anthropology

Undergraduate nondegree program: Minor in Anthropology

Graduate degrees: M.A., Ph.D. in Anthropology

Web site: http://www.uiowa.edu/~anthro

Anthropology is the comparative study of peoples and cultures past and present. The discipline's four major subfields--cultural anthropology, biological anthropology, linguistic anthropology, and archaeology--have important connections to other social sciences, physical and biological sciences, and to the arts and humanities.

Anthropology provides a framework for understanding the relation of human beings to their natural environment and to the social and cultural worlds they create and inhabit. The field provides insight into biological and sociocultural evolution and includes a focus on economic, social, and political organizations, symbolic systems, and social systems. Comparative studies of these and other aspects of past and present cultures yield information on regularities and differences.

Undergraduate Programs

The department offers a Bachelor of Arts and a Bachelor of Science in anthropology. Either program is appropriate preparation for advanced training or careers in anthropology, allied fields, and professional programs. Students who complete an anthropology major gain special understanding of human relations and expertise for jobs involving international or cross-cultural work, cultural resource management, and social and ethnic diversity in the United States.

Upon graduation, anthropology majors embark on careers in government work, international affairs, public health, gerontology, urban and regional planning, conservation, social work, marketing, museum work, and education. Others pursue graduate study in law, business, and health care as well as anthropology and related social science disciplines. Some are employed in cultural resource management.

The department also offers a minor in anthropology.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts in anthropology requires a minimum of 120 s.h., including 33 s.h. of work for the major. The Bachelor of Science in anthropology requires a minimum of 120 s.h., including 42 s.h. of work for the major. The B.A. is designed to offer a comprehensive overview of anthropology's four main subfields and the broadest possible cross-cultural background. The B.S. is designed for students with strong interest in physical anthropology, archaeological lab work, and quantitative approaches within sociocultural or linguistic anthropology.

B.A. and B.S. students may elect to complete one of three optional emphasis areas; see "Undergraduate Emphasis Areas" below.

All students majoring in anthropology, including transfer students, must earn a minimum of 15 s.h. for the major at The University of Iowa. Students may apply credit earned at approved field schools offered by other institutions toward the major, with Department of Anthropology approval.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Students who declare anthropology as their major when they are admitted to the College of Liberal Arts and Sciences are advised at the Academic Advising Center until they have earned 24 s.h. Students who have earned more than 24 s.h. are advised in the department. Students are assigned an advisor based on faculty advisor loads and student interests.

Common Requirements

All anthropology majors (B.A. or a B.S.) must complete the following requirements.

One of these (students may count only one toward the major):

113:003 Introduction to the Study of Culture and Society  3 s.h.
113:010 Anthropology and Contemporary World Problems  3 s.h.
All of these:

113:012 Introduction to Prehistory 3 s.h.
113:013 Human Origins 3 s.h.
113:014 Language, Culture, and Communication 3 s.h.
113:050 Issues in Anthropology 3 s.h.

One 100-level course in archaeology (area or topical) or biological anthropology
One 100-level course in sociocultural or linguistic anthropology
One 100-level course in area studies
Three 100-level electives

Anthropology electives offer many choices, including courses dealing with biological anthropology, environment and culture, expressive culture (art, verbal arts, literature, music, and dance), gender, human evolution, human evolutionary anatomy, human osteology, human prehistory, identity, language and culture, medical anthropology, psychological anthropology, religion and ritual, and urban anthropology. Department faculty members offer area studies courses on Latin America, Africa, Europe, Japan, the Caribbean, the Middle East, South Asia, and Native North America.

Additional Bachelor of Arts Requirements

Students pursuing the B.A. are strongly encouraged to participate in archaeological field and laboratory research, independent studies in sociocultural anthropology, or linguistic anthropology research.

Additional Bachelor of Science Requirements

Students pursuing the B.S. must fulfill requirements in the following areas.

A quantitative, mathematical, or formal reasoning tool: at least two courses, minimum 6 s.h.
Directed laboratory or field research: at least one course, 3 s.h. (credit may be applied to honors major when appropriate)
Allied topical course work (related minor)

QUANTITATIVE, MATHEMATICAL, OR FORMAL REASONING TOOL

Students must complete a minimum of 6 s.h. beyond the courses used to complete the General Education Program quantitative or formal reasoning component. Students select specific courses or course sequences in consultation with their advisors.

DIRECTED LABORATORY OR FIELD RESEARCH

Students complete an approved directed research requirement (minimum of 3 s.h.) consisting of one of the following.
Laboratory research: a laboratory practicum in anthropology research labs or independent, faculty-guided, laboratory research, including use of the collections of the Office of the State Archaeologist.
Field research project: faculty-advised projects involving the collection of primary data in a fieldwork setting.
A University of Iowa field school program or approved equivalent (current field school is Plum Grove Historical Archaeology).
An approved internship: typical approved internships include work in cultural resource management firms, museums, and public health research or education projects. To receive research credit for an internship, students must make a final report to their faculty advisor, summarizing the work accomplished or presenting materials that document the nature of the work.

ALLIED TOPICAL COURSE WORK

Students complete a topical specialization in one of the following allied fields: biology, chemistry, computer science, economics, geography, geoscience, global health studies, health and sport studies, integrative physiology, linguistics, mathematics, psychology, science education, or statistics and actuarial science. Minors (or at least five courses) in other fields, chosen in consultation with the student's advisor, may be applied toward this requirement.

Undergraduate Emphasis Areas

The department offers three optional undergraduate emphasis areas: gender and culture, cultural resource and heritage management, and environmental anthropology. Students majoring in anthropology may use an emphasis...
area to provide a particular focus in their study plan. Students in other majors may complete an emphasis area in order to add a focus to the minor in anthropology.

Each emphasis area reflects broad issues bridging subfields in and outside of anthropology. Completion of an emphasis area indicates considerable expertise and is noted on the student's transcript.

Each emphasis requires five courses (15 s.h.). With careful course selection, students majoring in anthropology can complete an emphasis area without adding to the semester hours required for graduation.

**Gender and Culture Emphasis**

Anthropological research regarding gender and sexuality has grown dramatically in recent years, enhancing and drawing from other theoretical and methodological approaches within the discipline. Such studies contribute a cross-cultural perspective to the discussion surrounding these fundamental aspects of human experience, both in academia and in public life.

The gender and culture emphasis requires five courses (15 s.h.) chosen from the following list. Each course provides an integrated overview of essential theoretical and topical issues in the field.

- 113:101 Disability and the Ethics of Care 3 s.h.
- 113:102 Ethnography and Auto/Biography 3 s.h.
- 113:105 Mothers and Motherhood 3 s.h.
- 113:107 Gendering India 4 s.h.
- 113:108 Anthropology of Marriage and Family 3 s.h.
- 113:127 South Asian Sexual Cultures 3 s.h.
- 113:133 The Anthropology of Women's Health 3 s.h.
- 113:134 Gender and Indian Diaspora 3 s.h.
- 113:137 The Anthropology of Love 3 s.h.
- 113:140 Politics of Reproduction 3 s.h.
- 113:141 History of Feminist Anthropology 3 s.h.
- 113:154 Anthropology of Sexual Minorities 3 s.h.
- 113:180 Women Writing Culture 3 s.h.
- 113:182 Women, Health, and Healing 3 s.h.

**Cultural Resource and Heritage Management Emphasis**

In North America and throughout much of the rest of the world, modern land use continually threatens evidence of past land use. Most archaeological excavations are conducted as cultural resource management (CRM), so it is essential that all researchers who work with archaeological data and individuals committed to site preservation have a basic understanding of CRM. Students who choose this emphasis learn about the field and about how to address related ethical issues as well as technical and theoretical challenges.

The cultural resource and heritage management emphasis requires five courses (15 s.h.): a fundamental overview course, two area electives, a technical/practical elective, and a field school course. Students may use some of these courses to satisfy requirements for the major, such as the 100-level course in archaeology and the 100-level electives.

**Fundamental overview course:**

113:193 Special Topics in Archaeology 3 s.h.

**Area elective courses**—two of these (or one of these and one other Department of Anthropology area course):

- 113:110 Native Peoples of North America 3 s.h.
- 113:159 Southwestern Archaeology 3 s.h.
- 113:167 North American Archaeology 3 s.h.
- 113:172 Historical Archaeology: The Archaeology of the U.S. 3 s.h.
- 113:179 Pleistocene Peopling of the Americas 3 s.h.
- 113:181 Archaeology of the Great Plains 3 s.h.

**Technical/practical elective course**—one of these:

- 113:153 Raw Materials in Archaeology 3 s.h.
- 113:158 Animal Bones in Archaeology 3 s.h.
- 113:160 Introduction to Archaeological Ceramics 3 s.h.
- 113:162 Practicum in Archaeology arr.
- 113:168 Archaeological Methods 3 s.h.
- 113:189 Approaches to Geoarchaeology 3 s.h.
213:190 Human Osteology 3 s.h.

Field school course—one of these:
113:199 Field Research in Archaeology arr.
An equivalent course from another university

Environmental Anthropology Emphasis

The interaction between humans and the environments they inhabit has long been a central issue in anthropology, and environmental degradation is a worldwide concern today. Pollution, loss of biodiversity, and global warming recognize no political boundaries, but attitudes and behaviors involving the natural environment vary widely from culture to culture. Understanding and incorporation of these varied perspectives will be vital to the development and successful use of workable solutions.

The environmental anthropology emphasis requires five courses (15 s.h.): two theory courses, which deal primarily with human-environmental interactions; and three area or topical electives, which deal in part with environment, ecology, and subsistence technologies. The following are sample courses in each area.

Theory courses:

113:113 Human Impacts on the Environment 3 s.h.
113:114 Environmentalism Cross-Culturally 3 s.h.
113:139 Religion and Environmental Ethics 3 s.h.
113:143 Environment and Culture 3 s.h.
213:152 Primate Conservation Biology 3 s.h.
113:215 Seminar: Ecological Anthropology 3 s.h.

Area or topical electives:

113:125 Japanese Society and Culture 3 s.h.
113:126 Animals, Culture, and Food 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
113:157 Foodways and Cuisine in the Past 3 s.h.
113:158 Animal Bones in Archaeology 3 s.h.
113:161 Prehistoric People of the Ice Age 3 s.h.
113:164 Comparative Prehistory 3 s.h.
113:178 Hunter-Gatherer Ethnoarchaeology 3 s.h.
113:181 Archaeology of the Great Plains 3 s.h.
113:187 Cultures in Collision 3 s.h.
113:189 Approaches to Geoarchaeology 3 s.h.
113:196 The Archaeology of Ancient Egypt 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

**Bachelor of Arts**

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** at least two courses in the major and one-half of the semester hours required for graduation

**Before the seventh semester begins:** at least seven courses in the major and at least three-quarters of the hours required for graduation

**Before the eighth semester begins:** at least eight courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Bachelor of Science**

**Before the third semester begins:** at least one anthropology course or other course in the major, and one-quarter of the semester hours required for graduation
Before the fifth semester begins: at least four anthropology courses or other courses in the major, one course in the minor area, one course for the quantitative or formal reasoning tool requirement, and one-half of the semester hours required for graduation

Before the seventh semester begins: at least seven courses in the major, three courses in the minor area, the second quantitative or formal reasoning tool course, and at least three-quarters of the hours required for graduation

Before the eighth semester begins: at least nine courses in the major, including the directed research requirement and four courses in the minor area

During the eighth semester: enrollment in all remaining course work in the major and in the minor area, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In addition to the regular requirements for a major in anthropology, honors students pursuing either a B.A. or B.S. conduct an independent research project that culminates in a 30-50 page thesis. The project includes completion of 113:186 Honors Research Seminar, offered only fall semesters, and registration for 113:176 Honors Research, typically the next semester. They also must take one of their anthropology courses at the graduate level. To graduate with honors, students must have a g.p.a. of at least 3.50 in anthropology and be a member of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). For more information about honors in anthropology, contact the department's honors advisor.

Students pursuing a B.S. can count their directed research project or laboratory practicum towards the semester hours needed to complete honors requirements, but meeting the research requirement by itself does not meet the honors requirement. Students must work with their honors thesis advisor to structure their research so that it meets the added requirements of honors work.

Minor

The minor in anthropology requires a minimum of 15 s.h. in anthropology courses, including 12 s.h. in University of Iowa Department of Anthropology courses numbered 113:100 and above and 213:100 and above. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in anthropology. The graduate program emphasizes continuity from the Master of Arts to the Doctor of Philosophy. The department admits students who seek the Ph.D.; students seeking only the M.A. ordinarily are not admitted.

Graduate students must complete all M.A. requirements before advancing to the Ph.D. program. Entering graduate students are not required to have an undergraduate degree in anthropology. Applicants who hold an M.A. in anthropology from another institution may apply directly for admission to the Ph.D. program.

Once a student completes all requirements for the M.A., his or her committee makes a recommendation to the faculty concerning the students’ potential for completing the Ph.D. The committee recommends continuation or dismissal from the program.

Master of Arts

The M.A. in anthropology requires 30-36 s.h. of graduate credit, depending on the student's previous anthropological training. Students may count a maximum of no more than 9 s.h. earned in courses outside anthropology toward the M.A. in anthropology. The degree normally is awarded to students after two years in the graduate program.

During the first semester of the M.A. program, students are advised by the director of graduate studies. By the end of the second semester, they must select an advisor and begin forming an M.A. committee. In consultation with the committee, the student develops a research project and writes an M.A. paper. The committee must approve the M.A. paper by the end of the fourth semester of study. The student also publicly presents the paper. As an alternative to the M.A. paper, students may choose to write a formal M.A. thesis, which must follow the Graduate College thesis guidelines. Students must submit a final copy of their M.A. thesis or paper to the department.

GENERAL COURSE WORK

M.A. students must complete core seminars in at least three of four subfields, for a total of 9 s.h. Core seminars are chosen from the following.
113:240 Seminar Sociocultural Anthropology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:271 Seminar: Linguistic Anthropology 3 s.h.
213:285 Seminar: Biological Anthropology 3 s.h.

In addition, all students are required to take 113:210 Anthropological Data Analysis or another course in statistics within the first three years of graduate study, preferably during the M.A. program (first two years of graduate study).

**ELECTIVES**

In consultation with their advisor and committee members, students select additional course work to complete the remaining semester hours required for the M.A. Elective hours may include courses in other disciplines, directed study, or up to 6 s.h. of M.A. thesis credit for students who choose the thesis option.

**Doctor of Philosophy**

The Doctor of Philosophy in anthropology requires a minimum of 72 s.h. of graduate credit. The Ph.D. represents a balance between general anthropological competence obtained at the M.A. level and professional specialization and competence for independent research and teaching in one of four subfields: sociocultural anthropology, linguistic anthropology, archaeology, and biological anthropology.

Ph.D. students also may elect to pursue a concentration in feminist anthropology or paleoanthropology. See "Concentrations" below.

To ensure focus on the student's research interests, the department has an integrated process of simultaneous preparation of reading lists, research proposals for submission to granting agencies, dissertation proposal, and position papers. In order to complete the degree, all doctoral candidates are required to complete appropriate course work and the Ph.D. comprehensive process, carry out original anthropological research, and write and defend a dissertation. Students work closely with their advisor and committee at all stages.

In the first semester after completing the M.A. (or the first semester in the program for students who enter with an M.A. in anthropology from another institution), the student selects an advisor. By the end of the second semester, the student selects a committee to oversee his or her completion of the comprehensive process.

Students immediately begin consulting with their advisor, and eventually their committees, to start compiling an annotated bibliography of works relevant to future research. The annotated bibliography is a working document for the student's use in the Ph.D. program; it is not a formal requirement and does not require formal review.

In the third and fourth semesters of the program, the student completes the comprehensive process. Then he or she may select a dissertation committee.

**REQUIRED COURSE WORK**

Students should take all lecture courses and seminars that are relevant to the areas they intend to cover in their position papers. A maximum of 18 s.h. earned in non-anthropology courses may be counted toward the 72 s.h. required for the Ph.D., including the maximum of 9 s.h. that can be counted toward the master's degree.

Students must not rely heavily upon independent study courses.

Students must take at least one theory course beyond the course they took to fulfill the master's requirements in their specialization subfield. This course should be chosen from one of the following lists.

### Sociocultural Anthropology

- 113:215 Seminar: Ecological Anthropology 3 s.h.
- 113:220 Seminar: Feminist Anthropology 3 s.h.
- 113:223 Feminist Medical Anthropology 3 s.h.
- 113:240 Seminar Sociocultural Anthropology 3 s.h.
- 113:241 Economic Anthropology 3 s.h.
- 113:244 Seminar: Semiotics 3 s.h.
- 113:250 Seminar: Ritual and Performance 3 s.h.

### Linguistic Anthropology

- 113:123 Language and Nationalism 3 s.h.
- 113:244 Seminar: Semiotics 3 s.h.
113:271 Seminar: Linguistic Anthropology 3 s.h.
113:273 Seminar: Language and Gender 3 s.h.

Archaeology

113:164 Comparative Prehistory 3 s.h.
113:174 Seminar: Taphonomy 3 s.h.
113:178 Hunter-Gatherer Ethnoarchaeology 3 s.h.
113:258 Seminar: Zooarchaeology 3 s.h.
113:268 Seminar: Archaeological Theory and Method 3 s.h.
113:269 Politics of the Archaeological Past 3 s.h.

Biological Anthropology

213:169 Human Evolutionary Anatomy 3 s.h.
213:187 Human Evolution 3 s.h.
213:285 Seminar: Biological Anthropology 3 s.h.
213:288 Seminar: Paleoanthropology 3 s.h.

FOREIGN LANGUAGE

All doctoral students must demonstrate reading and/or speaking knowledge of one foreign language. They must meet this requirement before beginning dissertation research.

THE PH.D. COMPREHENSIVE PROCESS

The comprehensive process consists of writing position papers and preparing a research proposal and prospectus defense. According to individual needs and in consultation with the committee, a student selects the order of completing these two tasks.

Successful completion of the comprehensive process advances the student to Ph.D. candidacy.

To remain in good academic standing, students must complete the comprehensive process by the end of the fourth semester in the Ph.D. program. Students who do not adhere to this timeline are placed on departmental probation.

Research Proposal and Prospectus Defense

Working closely with the committee, the student drafts a research proposal for the program of dissertation research and defends a research prospectus before the Ph.D. committee. The defense is open to students and faculty. A copy of the student's dissertation prospectus must be made available in the department office one week before the defense.

Position Papers

Position papers are two essays of publishable quality. One essay concerns the student's geographical area of specialization; the other deals with his or her primary topical area. In some fields (e.g., biological anthropology), a geographical area may not be relevant. The essays are responses to questions the committee prepares in consultation with the student.

Position papers should demonstrate analysis, evaluation, synthesis, and control of a body of information (knowledge and comprehension). They should critique a major problem or debate (application and analysis), and they should develop a position on an issue and provide an explanation or theoretical justification for the position (evaluation and synthesis).

DISSERTATION

All Ph.D. candidates are required to carry out original anthropological research. Students typically conduct dissertation research after defending their research prospectus and writing position papers. Dissertations usually are based on fieldwork. Some are based on data from archival collections, laboratory projects, collections, or other source materials.

Concentrations

In addition to their required course work in the four Ph.D. subfields, students may complete a concentration in feminist anthropology or paleoanthropology. Each concentration reflects broad issues bridging subfields in and outside of anthropology.

Completion of a concentration indicates substantial expertise. It is recognized as a department credential and may be
added to a student's curriculum vitae.

**FEMINIST ANTHROPOLOGY CONCENTRATION**

The feminist anthropology concentration offers broad training in a growing specialization area that enhances and draws from other theoretical approaches in anthropology. Graduate students in anthropology and other disciplines may explore particular aspects of the field by taking feminist anthropology courses.

Course work in the concentration emphasizes feminist perspectives, theories, methods, and analytic techniques in anthropology. It improves students' academic job prospects in anthropology and other fields, especially women's studies and gender studies. It also helps students prepare for careers in applied or public anthropology.

Feminist anthropology students take 15 s.h. of course work in the concentration in addition to their regular core requirements. The 15 s.h. should be divided between graduate seminars and elective courses as noted below.

Concentration courses may fulfill requirements for graduate electives in anthropology.

Feminist anthropology was offered as a track in the Master of Arts in academic year 2006-07 and earlier. Students who took courses as part of the M.A. track may count them toward the Ph.D. concentration.

The following list of approved courses is subject to change; contact the Department of Anthropology for updates. Students may petition to count other courses in anthropology or other disciplines toward the concentration, if the courses or the students' work in them includes significant relevant content. Petitions are reviewed by the feminist anthropology faculty.

**Graduate Seminars**

Students complete at least two of these (minimum of 6 s.h.) and may count additional graduate seminar courses as elective credit.

- 113:220 Seminar: Feminist Anthropology  3 s.h.
- 113:221 Seminar: Feminist Ethnography  3 s.h.
- 113:223 Feminist Medical Anthropology  3 s.h.
- 113:273 Seminar: Language and Gender  3 s.h.
- 113:290 Feminist Perspectives on Biology and Culture  3 s.h.

**Electives**

Students must earn a minimum of 9 s.h. in electives and may count extra credit earned in graduate seminars toward the elective requirement.

- 113:102 Ethnography and Auto/Biography  3 s.h.
- 113:105 Mothers and Motherhood  3 s.h.
- 113:107 Gendering India  4 s.h.
- 113:133 The Anthropology of Women's Health  3 s.h.
- 113:141 History of Feminist Anthropology  3 s.h.
- 113:152 Japan and Other Cultural Constructs  3 s.h.
- 113:154 Anthropology of Sexual Minorities  3 s.h.
- 113:180 Women Writing Culture  3 s.h.
- 113:182 Women, Health, and Healing  3 s.h.

**PALEOANTHROPOLOGY CONCENTRATION**

The paleoanthropology concentration offers broad training that combines archaeology and biological anthropology, two traditional subfields of anthropology important in understanding the biocultural factors that have been critical in human evolution. The concentration combines course work in both biological and archaeological anthropology, complementing the specialized training that students from either subfield receive in their own specialization. Paleoanthropology courses emphasize integration of biological and cultural factors in the evolution of hominid species up to and including modern humans. They encompass primate and human evolutionary anatomy, technology and subsistence in Paleolithic archaeology, and modern human hunter-gatherers.

Paleoanthropology students take 15 s.h. of course work in the concentration in addition to their regular core requirements. The 15 s.h. should be divided between graduate seminars and elective courses as noted below.

Students may choose core seminars to fulfill requirements for both the M.A. general course work and the paleoanthropology concentration.
The following list of approved courses is subject to change; contact the Department of Anthropology for updates. Students may petition to count other courses in anthropology or other disciplines toward the concentration, if the courses or the students' work in them includes significant relevant content. Petitions are reviewed by the paleoanthropology faculty.

Graduate Seminars

All of these (9 s.h.):

- 113:268 Seminar: Archaeological Theory and Method 3 s.h.
- 213:285 Seminar: Biological Anthropology 3 s.h.
- 213:288 Seminar: Paleoanthropology 3 s.h.

Electives

At least two of these (6 s.h. minimum):

- 113:178 Hunter-Gatherer Ethnoarchaeology 3 s.h.
- 113:258 Seminar: Zooarchaeology 3 s.h.
- 213:169 Human Evolutionary Anatomy 3 s.h.
- 213:170 Primate Evolutionary Biology 3 s.h.
- 213:187 Human Evolution 3 s.h.
- 213:190 Human Osteology 3 s.h.

Admission

Applicants for admission to the graduate program in anthropology are considered regardless of their previous field of training. Students without previous training in anthropology may be expected to perform additional work necessary to achieve competence expected for their degree objective.

Students normally are admitted directly to the Ph.D. program. For students without an M.A. in anthropology, the first two years of the Ph.D. program are devoted to fulfilling the requirements of the M.A. After those requirements are completed, the student's committee recommends to the faculty whether the student should continue to work toward the Ph.D.

Students with an M.A. in anthropology from another institution may proceed directly into a Ph.D. program organized around their special research interests.

Applicants for admission to the graduate program must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants are required to submit the following:

- a completed University application form;
- transcripts of all previous undergraduate and graduate work;
- three letters of recommendation from individuals competent to judge the applicant's potential for graduate training;
- Graduate Record Examination (GRE) scores;
- at least one written example of previous work (for example, a term paper).

Applicants whose first or official language is not English and whose previous academic degrees were not earned at an English-language institution must submit scores on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

Applicants with an M.A. from another university must submit a copy of their master's thesis; applicants who earned an M.A. without thesis or whose thesis is not yet complete should submit written copies of three papers completed in graduate school.

Financial Support

Financial assistance, usually in the form of teaching and research assistantships, is offered to the majority of graduate students in good standing for up to five years. Students making satisfactory and timely progress through the graduate program are in good standing. Eligibility for financial aid is reduced after two years in the M.A. program, after two years in the Ph.D. program, or after one year of postdoctoral fieldwork or research enrollment. The amount and types of aid
depend on departmental needs. The department usually awards financial aid to most entering graduate students every year.

Students are notified in writing of a provisional financial award before the semester or summer session for which the award has been granted. Although awards are made before the end of the previous semester, each award is contingent upon satisfactory completion of that semester's work by the awardee.

**Archaeological Field Research**

Under the direction of University archaeologists, students acquire skills in data recovery and interpretive techniques. Opportunities are available for students to participate in archaeological field research in central Mexico, France, the Netherlands, Portugal, Sicily, the U.S. Southwest, or at various sites in the U.S. Midwest. Occasional fieldwork in East and Southeast Asia is available to graduate students in the paleoanthropology research program.

**Resources, Facilities**

The department has access to the Iowa Archaeological Collections through the Office of the State Archaeologist and maintains its own archaeological collections (midwestern prehistoric and historical and comparative faunal material).

The department maintains a documented human osteology teaching collection amassed by the University of Iowa Carver College of Medicine and the Department of Anatomy and Cell Biology, and it holds a substantial documented human osteology research collection originally from Stanford University's medical school that is maintained jointly with the Office of the State Archaeologist.

Individual faculty members maintain field laboratories and conduct research outside the United States, maintaining ties with research institutions in foreign countries, including the Teotihuacán Archaeological Research Facility, in Mexico; the Laboratoire d'Ethnologie Préhistorique at Pincevent; the Centre de Recherches Archéologiques at Verberie, in France; the National Museum of Ethnology in Japan; the Institute of Technology Bandung (ITB), in Indonesia; the Gemeente Nijmegen, Bureau Archeologie, Nijmegen, the Netherlands, and the Deutsches Archäologisches Institut of Madrid.

The department also has well-equipped laboratories for the study of archaeology, biological anthropology, and a state-of-the-art multimedia linguistic anthropology laboratory.

The University is a charter member of the Human Relations Area Files (HRAF), an extensively annotated set of source materials on the peoples of the world—their environments, behavioral patterns, social lives, and cultures. Through HRAF and other library resources, anthropology students have access to source materials on more than 400 different cultures.

The University's exchange programs for Iowa students provide opportunities and some scholarships for study abroad.

**Faculty**

Members of the anthropology faculty have studied and lived in Africa, Asia, the Caribbean, Europe, Mexico and Central America, Pacific Islands, South America, and the United States. Recent field research has been conducted in Angola, Belgium, Brazil, Cameroon, China, Czech Republic, Ecuador, Fiji, France, Greece, Honduras, India, Indonesia, Italy, Japan, Mexico, Mozambique, Myanmar (formerly Burma), the Netherlands, Peru, Philippines, Portugal, Russia, Tanzania, the Gambia, the United States, and Vietnam.

Current faculty interests include patterns of political and economic development of emerging nations; the trade in Mexican folk art, material culture, human rights; indigenous movements; visual culture and indigenous media; gender and the cultural politics surrounding sobriety in native North America; the cultural production of scientific knowledge about racial/ethnic disparities in infant mortality in U.S. public health; stress, blood pressure, and social support in Mozambique; coping strategies in post-war Angola; power, memory, and social inequality in ancient Iberia; language and gender; expressive culture and performance in the Brazilian Amazon; language and social justice; Sanskrit, colonial linguistics, cultural politics of language, religion, and ethnicity; spiritual tourism in India; community and conflict, ritualization, localized religion, and environmentalism in Japan; ethnic minorities in Japan; diasporas, love, and romantic relations, culture, and totalitarianism in North Korea; paleoanthropological investigations of Pleistocene karst caves in China and northern Vietnam; geological and paleoanthropological field surveys of the Plio-Pleistocene Sangiran Dome, in Java; Neanderthal craniofacial form, function, and evolutionary history; anatomical modernity and the origins of modern humans; historical archaeology of Iowa; molecular anthropology, primate molecular ecology, primate conservation biology, primate evolutionary history; precontact state systems and the historical archaeology of the Basin of Mexico; faunal and spatial analyses from Paleolithic sites in France and the Ukraine; regional interaction and migration in late-prehistoric North America; peopling of the Americas; human impacts on the environment in North America.
Anthropology Courses

For Undergraduates

113:003 Introduction to the Study of Culture and Society  
Comparative study of culture, social organization. GE: Social Sciences.

113:010 Anthropology and Contemporary World Problems  
Selected world problems from an anthropological perspective; current dilemmas and those faced by diverse human groups in recent times and distant past. GE: Social Sciences.

113:012 Introduction to Prehistory  
Data, theories of evolution of human cultures from end of Pleistocene to emergence of complex societies; emphasis on prehistoric cultural information from world areas from which relatively complete sequences are available. GE: Historical Perspectives.

113:013 Human Origins  
Processes, products of human evolution from perspectives of heredity and genetics, evolutionary theory, human biological characteristics, fossil record, artifactual evidence, biocultural behaviors. GE: Natural Sciences.

113:014 Language, Culture, and Communication  
Human language in context of animal communication; development, acquisition of language; biological base; language as a linguistic system in cultural social context. GE: Social Sciences.

113:020 Introduction to Midwestern Prehistory  
Prehistoric cultural sequence of Iowa viewed against background of North American prehistory; current and future research. Same as 149:020.

113:029 First-Year Seminar  
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g. films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

113:050 Issues in Anthropology  
In-depth exploration of methodological and theoretical issues in contemporary anthropology; emphasis on critical reading of primary texts.

113:051 Diversity in Action in American Society  
Consequences of American racial and cultural diversity as related to contemporary social issues and professional careers; assumptions that define diversity as a problem for educators.

113:060 Forensic Anthropology and CSI  
Role and range of techniques used in forensic anthropology; how analysis of skeletal and nonskeletal remains is used in crime scene investigation; case studies.

113:061 Anthropology of Tattoos and Body Modification  
Cross-cultural perspective on corporal modification; how people communicate and inscribe cultural and personal significance on the body; tools used, from ink to scalpel.

113:062 Anthropology of Violence  
Sources and manifestations of violence; violence in varied contexts—war, genocide, colonialism, state violence, terrorism, domestic violence; anthropological perspective considering structural, economic, and symbolic violence.

113:063 Fifth Great Ape: Our Primate Heritage  
Human behavior and ecology viewed through the gap between nonhuman and human primates; adaptations, interactions of free-ranging species, cognition of higher primates in behavioral study.

113:064 The Evolution of Human Sex  

How evolution has shaped our sexual behavior; patterns of mate choice, parental behavior, social organization, cooperation, and conflict as responses to selection pressure; sexual selection, reproductive strategies, mate choice, sex roles and practices.

**113:065 Anthropology, Science Fiction, and Fantasy** 3 s.h.
Connections between anthropology and science fiction and fantasy; science fiction and fantasy films and literature surveyed and examined in light of scholarly essays on anthropological concepts such as human evolution, race, gender, the anthropological other.

**113:066 The Anthropology of Virtual Worlds** 3 s.h.
How virtual reality intertwines with social existence; anthropological exploration of virtual worlds, from checking e-mail to setting up bar crawls on Facebook; forms of virtual identity, how virtual life affects language.

**113:075 Individual Study** 1-3 s.h.
Readings in area or subdivision of anthropology in which student has had basic course work. Prerequisite: consent of instructor.

### Advanced Courses

**General Anthropology**

**113:103 Introduction to Museology** 3 s.h.
Overview of museum history, function, philosophy, collection and curatorial practices, governance and funding issues, exhibition evaluation, audience studies; American cultural institutions. GE: Humanities. Same as 024:102, 07S:112, 097:115.

**113:147 Special Topics in Anthropology** 2-3 s.h.
Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

**113:148 Special Topics in Anthropology** 2-3 s.h.
Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

**113:149 Special Topics in Anthropology** 2-3 s.h.
Problems, concepts involved in comparing and contrasting behavior and ideas of different cultures.

**113:209 Research Design and Proposal Writing** 3 s.h.
Anthropological research design; preparation of proposals for fieldwork or laboratory analysis.

**113:210 Anthropological Data Analysis** 3 s.h.
Quantitative procedures for analyzing field data, library materials; elementary statistics, introduction to computers.

**113:215 Seminar: Ecological Anthropology** 3 s.h.
Individual and group responses to ecological problems; causes and consequences of resource shortages, population growth, environmental destruction; conflicts over access to natural resources.

**113:235 Graduate Teaching Pro-Seminar** 1 s.h.
Graduate student teaching skills: developing course guidelines, leading discussion, grading, review sessions, dealing with problem students and complaints; development of syllabi and teaching portfolios; mentoring of less-experienced teaching assistants. Repeatable.

### Area Studies

The following archaeology courses may be used to fulfill the area studies requirement: 113:117 The Maya: Archaeology and Ethnohistory, 113:130 Archaeology of the Iberian Peninsula, 113:150 Tribes and Chiefdoms of Ancient Europe, 113:159 Southwestern Archaeology, 113:163 Archaeology of Mesoamerica, 113:166 The Aztecs, Their Predecessors, and Their Contemporaries, 113:167 North American Archaeology, 113:177 Celtic Archaeology, 113:181 Archaeology of the Great Plains, 113:192 Greek Archaeology and Ethnohistory, 113:194 Roman Archaeology, and 113:196 The Archaeology of Ancient Egypt. No single course may be used to fulfill both area studies
and archaeology requirements.

113:107 Gendering India 4 s.h.
Aspects of Indian culture, including nation, family, sexuality, work, and religion, through the lens of gender; Hindu India, differences in region, caste, and class. Same as 131:107.

113:110 Native Peoples of North America 3 s.h.

113:118 North Korea and Totalitarianism 3 s.h.
North Korea viewed as a human society, rather than a global security threat, through examination of the nation's culture and politics.

113:120 Popular Culture in South Asia 3 s.h.
Popular cultural forms (films, calendar art, music, comics, advertising) and their role in formation and expression of collective identities based on gender, ethnicity, caste, religion, and so forth in South Asia. Same as 039:119.

113:125 Japanese Society and Culture 3 s.h.
Cultural anthropology of Japan, including historical tradition, religious ethos, social organization, human ecology, educational and political institutions; emphasis on how these aspects relate to and influence one another. GE: Foreign Civilization & Culture. Same as 39J:125.

113:127 South Asian Sexual Cultures 3 s.h.
How sexuality is embedded in kinship, economics, nation, and religion in South Asia, with focus on India; chastity, celibacy, romance, arranged marriage, nonnormative sexualities associated with courtesans and hijras. Prerequisite: 113:003 or 113:010 or 131:010 or consent of instructor. Same as 131:127.

113:129 Language/Politics of Culture in South Asia 3 s.h.
Key moments in the sociolinguistic history of premodern, colonial, and postcolonial linguistic communities in South Asia; roles of language in mediation of cultural and political processes. Same as 039:122.

113:131 Latin American Economy and Society 3 s.h.
Development, present structure of Latin American economy and society; emphasis on rural regions in context of national development; focus on area as a whole. GE: Foreign Civilization & Culture.

113:132 Latin American Studies Seminar 3 s.h.

113:134 Gender and Indian Diaspora 3 s.h.
General theories of diaspora, which have expanded from the Jewish experience to explain African and Asian diasporas; theories in context of Indian diaspora populations and their relationship to the homeland. Same as 131:134.

113:152 Japan and Other Cultural Constructs 3 s.h.
Key texts in postwar Anglo-American anthropological studies of Japan; wartime enemy studies, national character studies, culture and personality school as represented by Ruth Benedict, and more. Prerequisite: 113:003 or 113:010.

Sociocultural Anthropology

113:101 Disability and the Ethics of Care 3 s.h.
Recent debate on disability, with emphasis on moral and ethical foundations of our society; care of the disabled as part of the broader social good. Prerequisite: 113:003 or 113:010.

113:102 Ethnography and Auto/Biography 3 s.h.
Ethnographic writing compared with biographical and autobiographical writings. Prerequisite: 113:003 or 113:010.

113:104 Cultural Politics 3 s.h.
Cultural politics involved in cultural representation; varied forms of cultural performance and display; social and power relationships between producers, consumers, represented subjects. Prerequisite: two courses chosen from 113:003, 113:010, 113:012, 113:013, and 113:014.

113:105 Mothers and Motherhood 3 s.h.
Treatment of motherhood; role of motherhood and devaluation of social status. Same as 131:142.

113:106 The Anthropology of War and Peace 3 s.h.
Fundamentals of human social conflict that lead to national wars, and how peace is made; perspectives from anthropological works. Prerequisite: 113:003 or 113:010.

113:108 Anthropology of Marriage and Family 3 s.h.
Classic anthropological theories of kinship and marriage, including topics such as cousin marriage and incest; recent work on new reproductive technologies and transnational marriage. Same as 131:108.

113:109 Literature and Anthropology 3 s.h.
Topics vary. Same as 008:151, 048:151.

113:114 Environmentalism Cross-Culturally 3 s.h.
Culturally constructed perceptions of nature, and their expression through environmental movements; why such movements emerge, techniques they employ, factors that contribute to their success or failure; alternative ways of conceptualizing the environment. Prerequisite: 113:003 or 113:010.

113:116 Urban Anthropology 3 s.h.
Cross-cultural approach to urban anthropology; urbanizing processes, migration and adaptation, aspects of class and ethnicity in urban settings, urban economic relations. GE: Social Sciences.

113:121 Health of Indigenous Peoples 3 s.h.
Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 149:121, 152:121.

113:124 Colonialism and Culture 3 s.h.
Effects of the colonial encounter on the European colonizers and colonized populations: cultural effects and colonial modernities through varied thematic, sociohistorical, and geographic contexts. Prerequisite: 113:003 or 113:010 or consent of instructor.

113:128 Faces of Culture 3 s.h.
Human subsistence and adaptation to environment in cultures from all continents; cross-culture comparisons and general themes.

113:133 The Anthropology of Women's Health 3 s.h.
How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisite: 113:003 or 113:010 or 131:010 or consent of instructor. Same as 131:133, 172:133.

113:135 Psychological Anthropology 3 s.h.
Cultural diversity in constructions of self, mind, and emotion; religious experience, altered states of consciousness, behavioral disorders. Prerequisite: 113:003 or 113:010.

113:136 Applied Anthropology 3 s.h.
Practical health, environmental, and social problems viewed through an anthropological framework; how anthropological approaches are used to recognize and address applied problems.

113:137 The Anthropology of Love 3 s.h.
The culturally diverse concept and practice of love as seen through cross-cultural and interdisciplinary texts on romantic and other forms of love.

113:139 Religion and Environmental Ethics 3 s.h.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Prerequisite: junior or senior standing or consent of instructor. Same as 032:130, 033:139.

113:140 Politics of Reproduction  
Debates over women's reproductive experience, including its medicalization. Same as 131:144.

113:141 History of Feminist Anthropology  
Development and evolution of feminist critiques in cultural anthropology; readings from early studies by women ethnographers, classic writings that sought to give women cross-cultural visibility, recent experimental texts. Prerequisite: 113:003 or 131:010. Same as 131:141.

113:142 Anthropology of Religion  
Approaches; religious roles; shamanism, witchcraft, curing; mythology; place of religion in social and cultural change. Same as 032:165.

113:143 Environment and Culture  
Individual and group responses to scarcities of natural resources such as land, water, food. Prerequisite: 113:003 or 113:010 or graduate standing or consent of instructor.

113:144 Culture and Consumption  
How social world is made through goods and commodities; gift giving, prestige economies, commodification, objects and ideology; politics of consumption; role of materialism in culture change; cases from prehistory to post-riot Los Angeles.

113:146 Anthropology of Death  
How anthropologists and archaeologists study death, dying, mortuary rituals, and notions of the afterlife in contemporary North America and in different places and times. Prerequisite: 113:003 or 113:012 or graduate standing or consent of instructor.

113:151 Women and World Religions  
Historical and contemporary experiences and role(s) of women in some of the world's religions; how gender is expressed through women's daily spiritual and religious lives and practices.

113:154 Anthropology of Sexual Minorities  
Ethnographic studies of sexual minorities and anthropological approaches to lesbian, gay, bisexual, and transgendered persons and communities; behavior, identity, performativity, kinship, globalization, the HIV/AIDS pandemic. Prerequisite: junior, senior, or graduate standing; or consent of instructor. Same as 131:154, 154:182.

113:155 Anthropology of the Body  
Theories of the body; roles the body plays in everyday life, how self is embodied, relationship among mind, body, spirit, and community.

113:175 Human and Animal Sacrifice  
Human and animal sacrifice as a religious practice and expression of violence in human societies; patterns and variations illustrated by examples from past and present societies; American capital punishment.

113:180 Women Writing Culture  
Feminist ethnography and other kinds of feminist narratives that "write culture" while pushing the boundaries of how anthropologists define ethnography. Prerequisite: 113:003 or 131:010. Same as 131:165.

113:182 Women, Health, and Healing  
Women's experience as recipients and providers of health care; intersection of race, class, cultural variation, and women's health; reproductive and nonreproductive health concerns. Same as 131:143.

113:184 Anthropology and International Health  
Anthropological contributions to and critiques of the international health enterprise; case studies illustrating anthropology and international health's intersection, and their differences. Offered spring semesters. Same as 152:184, 172:131.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisite/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>113:185</td>
<td>Medical Anthropology</td>
<td>3 s.h.</td>
<td>Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 152:185, 172:173.</td>
</tr>
<tr>
<td>113:191</td>
<td>Anthropology of Play</td>
<td>3 s.h.</td>
<td>Fundamental logic and variation of what is considered human play in diverse cultures. Prerequisite: 113:003 or 113:010.</td>
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<tr>
<td>113:201</td>
<td>Seminar: Anthropological Theory</td>
<td>3 s.h.</td>
<td>Contemporary theoretical issues in sociocultural anthropology.</td>
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<tr>
<td>113:202</td>
<td>Ethnographic Field Methods</td>
<td>3 s.h.</td>
<td>Basic data-gathering techniques for field research in sociocultural anthropology. Prerequisite: anthropology graduate standing or consent of instructor. Same as 172:202.</td>
</tr>
<tr>
<td>113:208</td>
<td>Foundations of Ethnomusicology</td>
<td>3 s.h.</td>
<td>Ethnomusicology in relation to domains of musical, humanistic, social science scholarship on expressive culture and artistic processes. Prerequisites: senior standing and consent of instructor. Same as 025:319.</td>
</tr>
<tr>
<td>113:220</td>
<td>Seminar: Feminist Anthropology</td>
<td>3 s.h.</td>
<td>Theory, methods, research, epistemology from a feminist perspective. Prerequisite: consent of instructor. Same as 131:220.</td>
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<tr>
<td>113:221</td>
<td>Seminar: Feminist Ethnography</td>
<td>3 s.h.</td>
<td>Feminist critiques of traditional ethnographies, informed by contemporary feminisms. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 131:245.</td>
</tr>
<tr>
<td>113:222</td>
<td>Reading Transnational Feminist Theory</td>
<td>3 s.h.</td>
<td>Issues in transnational feminist scholarship, including colonialism, globalization, the nation-state, religion, cultural traditions, and human rights, in global and U.S. domestic contexts; interdisciplinary readings with focus on anthropology, other social sciences. Same as 131:222.</td>
</tr>
<tr>
<td>113:223</td>
<td>Feminist Medical Anthropology</td>
<td>3 s.h.</td>
<td>Directions feminists have taken in medical anthropological scholarship; focus on ethnographies that have become classics of the genre and on influential theoretical and applied work. Prerequisite: consent of instructor. Same as 131:223.</td>
</tr>
<tr>
<td>113:240</td>
<td>Seminar Sociocultural Anthropology</td>
<td>3 s.h.</td>
<td>Social institutions in the world's societies; problems in theory, method, interpretation. Prerequisite: anthropology graduate standing.</td>
</tr>
<tr>
<td>113:241</td>
<td>Economic Anthropology</td>
<td>3 s.h.</td>
<td>Economic decision making; social institutions associated with production, distribution, consumption of goods; effects of economic development programs. Prerequisite: anthropology graduate or honors standing or consent of instructor.</td>
</tr>
<tr>
<td>113:250</td>
<td>Seminar: Ritual and Performance</td>
<td>3 s.h.</td>
<td>Approaches to comparative study of ritual in religious and secular contexts.</td>
</tr>
<tr>
<td>113:251</td>
<td>Seminar: Resistance in Theory and Practice</td>
<td>3 s.h.</td>
<td>Various forms of political resistance, some bold and dramatic (peasant rebellions), others more subtle and mundane (dissimulation, false compliance, pilfering); some resistance is symbolic (millenarian movements, rituals of conflict, status reversal); learning to recognize and attend to more subtle forms.</td>
</tr>
</tbody>
</table>
113:272 Seminar: Medical Anthropology 3 s.h.
Recent developments and innovative theoretical advances in medical anthropology. Prerequisite: 113:185 or equivalent or consent of instructor. Same as 172:272.

Archaeology

The following archaeology courses may be used to fulfill the area studies requirement: 113:117 The Maya: Archaeology and Ethnohistory, 113:130 Archaeology of the Iberian Peninsula, 113:150 Tribes and Chiefdoms of Ancient Europe, 113:159 Southwestern Archaeology, 113:163 Archaeology of Mesoamerica, 113:166 The Aztecs, Their Predecessors, and Their Contemporaries, 113:167 North American Archaeology, 113:177 Celtic Archaeology, 113:181 Archaeology of the Great Plains, 113:192 Greek Archaeology and Ethnohistory, 113:194 Roman Archaeology, and 113:196 The Archaeology of Ancient Egypt. No single course may be used to fulfill both area studies and archaeology requirements.

113:113 Human Impacts on the Environment 3 s.h.
Long-term patterns of human-environment interactions surveyed through archaeological case studies; varied scales of human impacts, including animal extinction, habitat destruction, agricultural practices, urban growth, state-level societies. GE: Social Sciences.

113:117 The Maya: Archaeology and Ethnohistory 3 s.h.
The Maya of Guatemala, Honduras, El Salvador, Belize, and Mexico from the end of the Pleistocene to the 19th century C.E.; achievements in art, science, religion, and social and political systems.

113:126 Animals, Culture, and Food 3 s.h.
The varied roles animals have played in human society through time; impact of humans on animal populations, ethical aspects of animals' roles in modern societies.

113:130 Archaeology of the Iberian Peninsula 3 s.h.
Introduction to archaeology of the Iberian Peninsula, from earliest human occupation through period of Romanization.

113:138 Archaeological Approaches to Social Change 3 s.h.
How archaeologists identify, explain, and interpret social change in the material record of the ancient past; archaeological evidence and explanations—drawn from case studies worldwide and theoretical perspectives—for population growth, migration, colonization, centralization, stratification, conflict, regionalism, devolution, specialization, and standardization. Prerequisite: 113:012.

113:150 Tribes and Chiefdoms of Ancient Europe 3 s.h.
Archaeology of European societies between the Mesolithic and Iron Age; how ideas about Europe's prehistoric past have been used for political purposes. Prerequisite: 113:012 or graduate standing or consent of instructor.

113:153 Raw Materials in Archaeology 3 s.h.
Raw materials used in traditional technologies such as ceramics, chipped stone tools, metallurgy; field trips, laboratory analyses, comparisons to prehistoric artifacts. Prerequisite: 113:012.

113:157 Foodways and Cuisine in the Past 3 s.h.
Anthropological and archaeological perspective on cuisine; present-day links between food and culture; past cuisines viewed through written documents and archaeological data; histories of different foods.

113:158 Animal Bones in Archaeology 3 s.h.
Use of faunal material in interpretation of archaeological remains, including skeletal anatomy, identification, taphonomy, determination of age and sex, seasonality, quantification, sampling, breakage and cutmarks, interpretations; laboratory sessions. Prerequisite: 113:012.

113:159 Southwestern Archaeology 3 s.h.
Anthropological overview of prehistoric cultures of the American Southwest; emphasis on understanding archaeological arguments concerning major processes in the past. Same as 149:159.

113:160 Introduction to Archaeological Ceramics 3 s.h.
Basic analytical techniques for archaeological ceramics, applied primarily to ceramics from midwestern and western North America; raw materials, manufacture, decoration and style, craft specialization, use, and discard. Prerequisite: 113:012 or consent of instructor.

113:161 Prehistoric People of the Ice Age  
Hominid occupation of Old World during Pleistocene; hominid fossils, artifacts, settlement patterns, climatic reconstruction, evolutionary processes; survey and evaluation. Prerequisites: 113:012 and 113:168, or consent of instructor.

113:162 Practicum in Archaeology  
Intensive, hands-on examination of a wide range of materials recently recovered from archaeological sites; pottery, lithics (stone tools and related items), plant remains, animal bones; for students with strong archaeological interests or archaeological field experience. Prerequisite: consent of instructor.

113:163 Archaeology of Mesoamerica  
Archaeological data related to the evolution of civilization in Mesoamerica; sequence from hunter-gatherers to A.D. 1519; emphasis on Central Mexico, Maya area, Oaxaca. Prerequisite: 113:012 or anthropology graduate standing or consent of instructor.

113:164 Comparative Prehistory  
Cultural evolution in Old World, New World; emphasis on developments from pre-agricultural societies to appearance of urban civilizations; focus on Mesoamerica, Central Andes, Near East, Egypt, Indus Valley, China. Prerequisite: 113:012 or anthropology graduate standing or consent of instructor.

113:165 Mesoamerican Reading, Writing, and Arithmetic  
Basic presentation of Aztec, Zapotec, and Maya literature and science; notational techniques used in writing and mathematics, taken from archaeology and ethnohistory; world views and cosmology viewed through literature and science. Prerequisite: 113:003 or 113:010 or 113:012 or 113:013 or 113:014 or graduate standing.

113:166 The Aztecs, Their Predecessors, and Their Contemporaries  
Background for development of Aztec state, nature of civilization encountered by Spaniards in 1519, contemporary peoples affected by Aztecs. Prerequisite: 113:012 or anthropology graduate standing or consent of instructor.

113:167 North American Archaeology  
Prehistoric cultural development north of Mexico from initial occupation to European contact and conquest; emphasis on dynamics of culture change. Same as 149:167.

113:168 Archaeological Methods  
Current theoretical approaches, methods used to investigate the past; site formation processes, taphonomy, sampling and research design, typology and seriation, subsistence-settlement reconstruction, cultural evolution. Prerequisite: 113:012.

113:169 Lithic Analysis in Archaeology  
Archaeological issues examined and addressed with lithic data; use of lithic data to study the past, specific techniques applied. Prerequisite: 113:012 or graduate standing.

113:172 Historical Archaeology: The Archaeology of the U.S.  
Cultures examined through archaeological and historical data. Prerequisite: 113:012.

113:174 Seminar: Taphonomy  
Taphonomy (study of fossil record in paleontology and archaeology); processes for accumulation, modification, and deposition of remains in prehistory; instruction by archaeologist and paleontologist. Prerequisite: graduate standing or consent of instructor. Same as 012:174.

113:177 Celtic Archaeology  
Archaeology and ethnohistory of Celtic societies of Iron Age Europe; patterns and variation in economies, sociopolitical organization, religion; relationships between Iron Age Celts and modern descendants.

113:178 Hunter-Gatherer Ethnoarchaeology
Variability in adaptations of hunter-gatherers on a global scale; emphasis on subsistence, mobility, social organization; archaeological record of prehistoric hunter-gatherers interpreted through study of modern societies. Prerequisite: graduate standing or consent of instructor.

113:179 Pleistocene Peopling of the Americas 3 s.h.
Major themes in earliest human settlement of the Americas, including human mobility, subsistence, technology, human impacts on the environment.

113:181 Archaeology of the Great Plains 3 s.h.
Contrasting lifeways, diets, and technologies that humans used to survive on North America’s Great Plains, from Ice Age hunter-gatherers to Euroamerican homesteaders.

113:187 Cultures in Collision 3 s.h.
Survey of archaeological evidence for differences in human interactions between two or more cultural groups; issues such as ethnicity, war, economy, repression, multiethnic communities.

113:189 Approaches to Geoarchaeology 3 s.h.
Geoarchaeology as multidisciplinary contextual framework for human paleoecology; natural processes that create the archaeological record, approaches to reconstructing landscapes of the past as a context for archaeological deposits; weekend field trip. Prerequisite: 012:136 or 012:172 or 113:161 or 113:164 or consent of instructor. Same as 012:185.

113:192 Greek Archaeology and Ethnohistory 3 s.h.
Archaeology and ethnology of the Greek world, from end of Bronze Age to late Roman Empire; sociocultural processes that influence development and persistence of Greek civilization. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 20E:118.

113:193 Special Topics in Archaeology 3 s.h.

113:194 Roman Archaeology 3 s.h.
Archaeology and ethnology of Roman civilization from Iron Age eighth-century occupation of the Palatine Hill to the end of the Roman empire in the West, A.D. 476. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 20E:119.

113:196 The Archaeology of Ancient Egypt 3 s.h.
Introduction to the archaeology of ancient Egypt from predynastic times to Roman Egypt, including monumental architecture; patterns of everyday life; social, economic, and demographic considerations; history of archaeology in Egypt. Prerequisite: 113:012 or consent of instructor. Same as 20E:196.

113:199 Field Research in Archaeology arr.
Beginning skills in site surveying and excavation, lab work, record keeping at nearby prehistoric sites. Prerequisite: consent of instructor.

113:258 Seminar: Zooarchaeology 3 s.h.
Interpretation of faunal material in archaeology; intensive survey of classic and recent literature on taphonomy, skeletal anatomy, population parameters, seasonality, quantification and sampling, butchering patterns, ethnoarchaeology, social and economic inferences. Prerequisite: 113:158 or consent of instructor.

113:268 Seminar: Archaeological Theory and Method 3 s.h.
Development, current status of theory, method in Americanist archaeology. Prerequisite: anthropology graduate standing or consent of instructor.

113:269 Politics of the Archaeological Past 2-3 s.h.
How control over representation and management of the ancient past intersects with the identity of diverse groups, including archaeologists, indigenous peoples, national governments. Prerequisite: 113:268 or consent of instructor.

Biological Anthropology

113:115 The Neanderthal Enigma 3 s.h.
Survey of Neanderthals as the most widely known, yet enigmatic, fossil human lineage; history of discoveries; current interpretations of Neanderthal’s origins, anatomy and behavior, relationship to today’s people, extinction. Prerequisite: 113:013 or consent of instructor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>213:116</td>
<td>Modern Human Origins</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Current data and theories regarding the emergence of Homo sapiens; how human anatomical modernity is defined and recognized in the fossil record; competing models for modern humans’ emergence--multiregional evolution, out of Africa, the assimilation model; interpretation of recent developments and discoveries in the human fossil record; contemporary contributions from genetics, developmental biology, evolutionary ecology, paleodemography.</td>
<td></td>
</tr>
<tr>
<td>213:150</td>
<td>Primate Comparative Morphology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Survey of anatomical differences between primate groups; focus on function, adaptation, evolution. Prerequisite: 113:013 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:151</td>
<td>Anthropological Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Application of molecular methods and theory to biological anthropology; how recent advances in genetics have provided insight into the evolution of human and nonhuman primates. Prerequisite: 113:013 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:152</td>
<td>Primate Conservation Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Issues faced by conservation biologists attempting to protect nonhuman primate wildlife and biodiversity; how biogeography, ecology, and behavior relate to conservation; human interaction with the environment. Prerequisite: 113:013 or consent of instructor.</td>
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</tr>
<tr>
<td>213:165</td>
<td>Human Variation</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Range and patterning of biological diversity in contemporary human populations; past and present attempts to organize and explain human genetic, morphological variation in light of recent data, theory.</td>
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<tr>
<td>213:169</td>
<td>Human Evolutional Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Interpretation of skeletal remains as the basis for reconstructing forms, adaptations, lifestyles of prehistoric humans; body size, musculature, stance, activity patterns, brain size, and sexual dimorphism. Prerequisite: 213:190 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:170</td>
<td>Primate Evolutional Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Origin and diversification of the primate order through fossil evidence, morphology, systematics, and biomolecular studies emphasizing phylogenetic interpretations, paleobiological and paleoecological reconstructions. Prerequisite: 113:013 or 002:131 or consent of instructor.</td>
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</tr>
<tr>
<td>213:187</td>
<td>Human Evolution</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>From earliest fossil record of apes to origin and diversification of hominid family and appearance of modern Homo sapiens; evidence from paleontology, comparative anatomy, biomolecular studies, archaeology considered from evolutionary perspective. Prerequisite: 002:131 or 012:121 or 113:013 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:188</td>
<td>Primate Behavior and Ecology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Systematics, anatomy, behavior, and ecology of the living species of primates; emphasis on adaptations and interactions of free-ranging primates. Prerequisite: 113:013 or 002:134 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:190</td>
<td>Human Osteology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>The human skeletal system; normal and pathologic variation; skeletal measurement and analysis with application to paleoanthropology, forensic, and archaeological investigations. Prerequisite: 113:013 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:195</td>
<td>Laboratory Methods in Biological Anthropology</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Specimen preparation, cataloging, moulding and casting, photography, computer analyses, library research. Prerequisite: consent of instructor.</td>
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<tr>
<td>213:285</td>
<td>Seminar: Biological Anthropology</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Physical anthropology, including heredity and genetics, evolutionary theory, human biological characteristics, primate and human fossil record, primate behavior and ecology, human adaptations. Prerequisite: graduate standing in anthropology or biology or related department or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>213:288</td>
<td>Seminar: Paleoanthropology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Current understandings of biocultural processes and events underlying Pleistocene human evolution; cross-disciplinary approach combining human paleontology and Paleolithic archaeology. Prerequisites: graduate standing or undergraduate honors standing or advanced undergraduate standing, and consent of instructor.

**113:290 Feminist Perspectives on Biology and Culture** 3 s.h.
Explores feminist analyses of the cultural and historical situatedness of scientific knowledge, topics range from human evolution and primatology to developmental biology and genetics to nuclear physics. Same as 131:290.

**Linguistic Anthropology**

**113:100 Introduction to Linguistics** 3 s.h.
Introduction to the study of human language: sounds and their contrasts and variation, words and meaningful subunits, sentence structure, historical change. Same as 08L:100, 103:100.

**113:122 Bad Language** 3 s.h.
Normative roles of language in society viewed in context of speech forms labeled marginal or deviant; nonstandard speech, joking registers, jargons, and obscene/indecent language from varied speech communities.

**113:123 Language and Nationalism** 3 s.h.
Varied cases of linguistic nationalism; how language has become a powerful symbol for expression of national identity across many contexts and circumstances.

**113:171 Multi-Media Ethnography** 3 s.h.
Skills and tools for using multimedia technologies in ethnographic research and presentations; students conduct research projects using audio and video recording equipment and develop media-based presentations; ethnographic emphasis on contextually situated social interaction. Prerequisite: 113:003 or 113:010 or 113:014 or consent of instructor.

**113:173 Language and Gender** 3 s.h.
Gender-related language variation; current research on gender-specific linguistic forms and usage in the United States and other language communities; introduction to relevant principles of linguistic theory and analysis. GE: Cultural Diversity. Same as 103:150.

**113:244 Seminar: Semiotics** 3 s.h.
Piercian semiotic and Saussurean semiological conceptual frameworks; focus on anthropological, linguistic issues.

**113:271 Seminar: Linguistic Anthropology** 3 s.h.
Fundamental concepts and methods employed in the anthropological study of language; principal areas of current research. Same as 103:220.

**113:273 Seminar: Language and Gender** 3 s.h.
Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspectives, methodological approaches that have shaped thought on the language/gender nexus. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 103:221.

**Individual Reading and Research**

**113:176 Honors Research** 2-4 s.h.
Project chosen in consultation with honors advisor. Prerequisite: consent of instructor.

**113:183 Independent Study**
Prerequisite: consent of instructor.

**113:186 Honors Research Seminar** 2-4 s.h.
Preparation for writing honors thesis, including project conception and research, proposal writing, oral and written presentations of student research. Prerequisite: honors standing in anthropology. Pre- or corequisite: 113:176.

**113:383 Independent Study: Anthropology**
arr.
113:384 Research: Anthropology
Repeatable.

113:385 Thesis
Repeatable.
Art and Art History

Director: John Beldon Scott


Associate professors: Thomas R. Aprile, Isabel Barbuzza, Robert Bork, Ronald M. Cohen, David O. Dunlap, Laurel Farnin, Julie Hochstrasser, Anita Jung, Barbara Mooney, Robert Rorex, Susan Chrysler White, Rachel Williams, Jon Winet

Assistant professors: Monica Correia, Bradley Dicharry, John Freyer, Sarah Kanouse, Brenda Longfellow, Mathew Rude

Lecturers: Thomas Christison, Julia Leonard, Laura Young

Undergraduate degrees: B.A., B.F.A. in Art, B.A. in Art History

Undergraduate nondegree programs: Minor in Art, Art History

Graduate degrees: M.A., M.F.A. in Art; M.A., Ph.D. in Art History

Web site: http://www.art.uiowa.edu/

The School of Art and Art History provides a creative, multidisciplinary environment for students of the studio arts, the history of art, and art education. Established in 1936, the school is firmly grounded in the College of Liberal Arts and Sciences. It encourages interaction among its diverse faculty as well as collaboration with related disciplines across campus.

Iowa's art and art history graduates enjoy success as practicing professional artists, professors of art history, teachers, museum directors and curators, theater designers, commercial designers, and art administrators.

During the 2009-10 academic year, courses originally scheduled in the Art Building and Art Building West are being held in other facilities, and the school's main office is located in Seashore Hall, close to the Pentacrest. Visit the School of Art and Art History web site and ISIS for information about studio, office, and classroom sites.

Studio Arts

The studio art program is based on the idea that the philosophical issues of society that are questioned and interpreted by artists are the basis for an artist's work. The diversity of concept and style among School of Art and Art History faculty members encourages students to seek and work toward a keen understanding of themselves as individuals capable of making their own personal statements as part of the philosophical continuum in art's history.

Studying the broad contexts in which art is made, understood, and used by society prepares studio art students to continue work in an academic setting as well as in museums, galleries, and a multiplicity of other venues. Graduate students are especially encouraged to examine the contexts of visual and verbal issues central to their own work and that of their contemporaries.

Undergraduate and graduate studio arts students may concentrate in ceramics, design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, or sculpture.

Art History

Art history, a broad intellectual discipline, is central to the humanities. Diverse approaches characterize the school's art history faculty, who have interdisciplinary ties within and beyond the University. Their primary mission is to help students develop skills for exploring issues and problems central to the history of art as a whole as well as to its specialized areas. Because the major in art history stresses the development of critical visual thinking, it prepares students for graduate work in the history of art and for other professional fields as well.

Art Education

The Teacher Education Program in art prepares undergraduate and graduate students for licensure to teach art in grades K-12. Because teaching, like making art, is informed by experience, the art education area has established one of the nation's most extensive preservice teaching programs. Students conduct case studies of individuals making and responding to art, observe art classrooms, teach in a Saturday children's workshop, and participate in artist-in-residence programs in secondary schools. M.A. and Ph.D. students in art education draw on resources in American studies, anthropology, sociology, and the literature, science, and the arts program to prepare for positions as teachers in museums, colleges, or universities, or as art administrators.

Undergraduate Programs

The School of Art and Art History offers a Bachelor of Arts and a Bachelor of Fine Arts in art, and a Bachelor of Arts in art history. All three degrees include an optional Teacher Education Program, in collaboration with the College of Education. The school also offers a minor in art and a minor in art history.

Bachelor of Arts in Art

The Bachelor of Arts in art requires a minimum of 120 s.h., including at least 39 s.h. of work for the major. The program requires a foundation in art history as well as an understanding of the formal traditions and contemporary practices in art.
Undergraduate students concentrating in studio art begin in the program leading to the B.A. and pursue broad-based knowledge in at least four areas of studio art. Students who have proven ability may transfer into the B.F.A. program. Application for transfer to the B.F.A. normally is made early in the junior year. B.F.A. students may select an emphasis in ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, or sculpture.

B.A. students in art must earn at least 70 s.h. of credit in non-School of Art and Art History courses; they may count a maximum of 50 s.h. earned in courses offered by the school (art history, studio art, and art education combined) toward graduation. Cross-referenced courses offered by the school may not be counted as non-art electives. Students also must complete the College of Liberal Arts and Sciences General Education Program.

Teacher licensure requirements are the same for B.A. and B.F.A. students; see "B.A. or B.F.A. with Teacher Licensure (Art Education)" below.

**REQUIRED COURSE WORK**

The major in art requires the following courses. Not all courses are offered every semester, including required courses. When making a study plan, students should consult with their advisors and ISIS to determine when specific courses will be offered.

Two art history courses chosen from these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:002</td>
<td>Arts of Africa</td>
<td>3</td>
</tr>
<tr>
<td>01H:005</td>
<td>Western Art and Culture Before 1400</td>
<td>3</td>
</tr>
<tr>
<td>01H:006</td>
<td>Western Art and Culture After 1400</td>
<td>3</td>
</tr>
<tr>
<td>01H:016</td>
<td>Asian Art and Culture</td>
<td>3</td>
</tr>
</tbody>
</table>

Two additional art history courses chosen from these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:001</td>
<td>Art and Visual Culture</td>
<td>3</td>
</tr>
<tr>
<td>01H:004</td>
<td>Masterpieces: Art and Cultural Paradigms</td>
<td>3</td>
</tr>
<tr>
<td>01H:008</td>
<td>Themes in Global Art</td>
<td>3</td>
</tr>
<tr>
<td>01H:010</td>
<td>Tutorial for Majors: Art History as a Discipline</td>
<td>3</td>
</tr>
</tbody>
</table>

Any course from 01H:021 through 01H:199

Two foundational studio arts courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A:003</td>
<td>Basic Drawing (prerequisite for all studio courses)</td>
<td>3</td>
</tr>
<tr>
<td>01A:004</td>
<td>Design Fundamentals (prerequisite for all studio courses)</td>
<td>4</td>
</tr>
</tbody>
</table>

Two of these three-dimensional courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01C:060</td>
<td>Ceramics I</td>
<td>3</td>
</tr>
<tr>
<td>01D:021</td>
<td>Problems in Design I: Form and Structure</td>
<td>3</td>
</tr>
<tr>
<td>01G:084</td>
<td>Introduction to Jewelry and Metal Arts</td>
<td>3</td>
</tr>
<tr>
<td>01J:090</td>
<td>Intermedia I</td>
<td>3</td>
</tr>
<tr>
<td>01N:015</td>
<td>Undergraduate Sculpture I</td>
<td>3</td>
</tr>
</tbody>
</table>

Two of these two-dimensional courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01D:028</td>
<td>Graphic Design I</td>
<td>3</td>
</tr>
<tr>
<td>01F:007</td>
<td>Life Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>01K:009</td>
<td>Painting I</td>
<td>3</td>
</tr>
<tr>
<td>01M:011</td>
<td>Introduction to Printmaking</td>
<td>3</td>
</tr>
<tr>
<td>01L:034</td>
<td>Beginning Photography</td>
<td>3</td>
</tr>
</tbody>
</table>

or

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01L:036</td>
<td>Beginning Digital Photography</td>
<td>3</td>
</tr>
</tbody>
</table>
Electives chosen from School of Art and Art History courses must bring the total credit in art history, studio art, and art education to a minimum of 39 s.h.

**Transfer Students**

Transfer students majoring in art must complete a minimum of 12 s.h. in studio art at The University of Iowa. The studio hours must include work in at least two different studio areas.

Transfer students majoring in studio art must attend transfer portfolio review and show a portfolio of their art to faculty members, who determine students' placement in, or exemption from, the sequence of basic studio courses.

**Study Abroad**

Students who wish to study abroad must meet with the undergraduate advisor before they depart to review approval or pending approval of the studio art and art history courses they plan to take. Upon their return, they meet with the undergraduate advisor to determine which courses require portfolio review. Students may need to bring the original art work they completed during their study abroad back to campus for a portfolio review with a designated faculty member.

**Bachelor of Fine Arts in Art**

The Bachelor of Fine Arts in art requires a minimum of 120 s.h., including 62 s.h. of work for the major (art and art history courses). B.F.A. students may select an emphasis in ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, or sculpture.

Prospective B.F.A. students must apply to the program after completing at least two semesters of work in a studio concentration area but before completing 50 s.h. in art (normally early in the junior year). B.F.A. admission reviews are held once each semester. Students who wish to enter the B.F.A. program should consult the faculty in their studio concentration area for information about the required portfolio review.

B.F.A. students in art must earn at least 58 s.h. of credit in non-School of Art and Art History courses; they may count a maximum of 62 s.h. earned in courses offered by the school (art history, studio art, and art education combined) toward graduation. Cross-referenced courses offered by the school may not be counted as non-art electives. Students also must complete the College of Liberal Arts and Sciences General Education Program.

Teacher licensure requirements are the same for B.A. and B.F.A. students; see "B.A. or B.F.A. with Teacher Licensure (Art Education)" below.

B.F.A. students must complete all courses required for B.A. students; see "Required Course Work" under "Bachelor of Arts in Art" above.

In addition, B.F.A. students must complete three courses in a studio concentration area beyond the introductory or beginning course, as well as one introductory course and one advanced course in each of two additional studio areas (minor concentration areas).

B.F.A. students in drawing and painting are required to take 01F:106 Undergraduate Seminar in Drawing and Painting in addition to the three required studio courses for the concentration area. This course work does not count toward the minor concentration areas.

B.F.A. students in painting are required to complete the following sequence:

- 01K:009 Painting I 3 s.h.
- 01K:010 Painting II 3 s.h.
- 01K:049 Painting IV 4 s.h.

Students may enroll in other painting classes in addition to the above sequence.

B.F.A. students must present an exhibition of their studio work, preferably at the School of Art and Art History.

**B.A. and B.F.A. with Teacher Licensure (Art Education)**

Students majoring in art who are interested in teaching in elementary or secondary schools may earn a B.A. or B.F.A. in art with K-12 teacher licensure through the Art Education Program. Art education requires a broad foundation in formation traditions of studio art, substantive knowledge in art history, and art teacher certification course work.

Applications for admission to the Art Education Program must be submitted to the Teacher Education Program in the College of Education, in care of the Office of Teacher Education and Student Services. Application deadlines are June 15 for fall admission, October 15 for spring admission, and March 15 for summer admission.

**B.A. with Teacher Licensure (Art Education)**
The Bachelor of Arts with teacher licensure (art education) requires a minimum of 120 s.h., including at least 42 s.h. of work for the major (art and art history courses). Art education students concentrate in studio art and pursue broad-based knowledge in at least four areas of studio art.

B.A. students in art education must earn at least 70 s.h. of credit in non-School of Art and Art History courses; they may count a maximum of 50 s.h. earned in courses offered by the school (art history, studio art, and art education combined) toward graduation. Cross-referenced courses offered by the school may not be counted as non-art electives. Students also must complete the College of Liberal Arts and Sciences General Education Program.

REQUIRED COURSE WORK

The major in art with teacher licensure (art education) requires the following course work.

Two art history courses chosen from these (preferably taken during the first or second year):

01H:002 Arts of Africa 3 s.h.
01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:016 Asian Art and Culture 3 s.h.

Two additional art history courses:

01H:001 Art and Visual Culture 3 s.h.
01H:004 Masterpieces: Art and Cultural Paradigms 3 s.h.
01H:008 Themes in Global Art 3 s.h.
01H:010 Tutorial for Majors: Art History as a Discipline 3 s.h.
Any course from 01H:021 through 01H:199

Two foundational studio courses:

01A:003 Basic Drawing 3 s.h.
01A:004 Design Fundamentals 4 s.h.

Three three-dimensional courses:

01C:060 Ceramics I 3 s.h.
01C:061 Ceramics II 3-4 s.h.
01G:084 Introduction to Jewelry and Metal Arts 3 s.h.

Two of these two-dimensional courses:

01D:028 Graphic Design I 3 s.h.
01F:007 Life Drawing I 3 s.h.
01K:009 Painting I 3 s.h.
01M:011 Introduction to Printmaking 3 s.h.

01L:034 Beginning Photography 3 s.h.
or
01L:036 Beginning Digital Photography 3 s.h.

Electives chosen from School of Art and Art History courses must bring the total credit in art history, studio art, and art education to a minimum of 42 s.h. Students often select two additional studio courses in an emphasis area.

B.F.A. with Teacher Licensure (Art Education)

The Bachelor of Fine Arts with teacher licensure (art education) requires a minimum of 120 s.h., including 62 s.h. of work for the major (art and art history courses). Art education students concentrate in studio art and pursue broad-based knowledge in at least four areas of studio art. B.F.A. students may select an emphasis in ceramics, graphic design, three-dimensional (3-D) design, drawing, intermedia, jewelry and metal arts, painting, photography, printmaking, or sculpture.
B.F.A. students in art education typically complete an additional semester of course work.

Prospective B.F.A. students must apply to the program after completing at least two semesters of work in a studio concentration area but before completing 50 s.h. in art (normally early in the junior year). B.F.A. admission reviews are held once each semester. Students who wish to enter the B.F.A. program should consult the faculty in their studio concentration area for information about the required portfolio review.

B.F.A. students in art must earn at least 58 s.h. of credit in non-School of Art and Art History courses; they may count a maximum of 62 s.h. earned in courses offered by the school (art history, studio art, and art education combined) toward graduation. Cross-referenced courses offered by the school may not be counted as non-art electives. Students also must complete the College of Liberal Arts and Sciences General Education Program.

B.F.A. students must complete all courses required for B.A. students; see "Required Course Work" under "B.A. with Teacher Licensure (Art Education)" above.

In addition, B.F.A. students must complete three courses in a studio concentration area beyond the introductory or beginning course, as well as one introductory course and one advanced course in each of two additional studio areas (minor concentration areas).

B.F.A. students in drawing and painting are required to take 01F:106 Undergraduate Seminar in Drawing and Painting in addition to the three required studio courses for the concentration area. Papermaking, calligraphy, and bookbinding courses may not be used as major or minor areas.

Before they student teach, B.F.A. students must present an exhibition of their studio work, preferably at the School of Art and Art History.

Transfer Students
Transfer students majoring in art with art education must complete a minimum of 3 s.h. in art history and 12 s.h. in studio art at The University of Iowa. The studio art credit must include work in at least two different studio areas.

Undergraduate transfer students majoring in studio art must show a portfolio of their art to faculty members on the Friday before a fall or spring semester begins. The faculty members determine each student's placement in or exemption from the sequence of basic studio courses.

Bachelor of Arts in Art History

The Bachelor of Arts in art history requires a minimum of 120 s.h., including 45 s.h. of work for the major. The history of art is engaged in problems of historical analysis and the interpretation of culture, so the program provides students with a broad background in the humanities consistent with a liberal arts and sciences education. The undergraduate degree program provides students with a strong liberal arts background and prepares them for competitive placement in graduate schools across the country.

As students progress through the program, they become familiar with historical relationships between art objects and society, learn techniques of formal analysis, study patterns of patronage, and absorb methods for interpreting the meaning of paintings, sculptures, and architecture. In the course of their studies, art history majors develop their research abilities and writing skills.

The major in art history requires at least 45 s.h. in art history and studio art courses. Students may count a maximum of 50 s.h. earned in School of Art and Art History courses (art history, studio art, and art education combined) toward graduation; they must earn at least 70 s.h. of credit toward the B.A. in non-School of Art and Art History courses. Exception: students working toward two majors, one in art history and one in studio art, and students earning a major in art history and a minor in studio art may count more than 50 s.h. earned in art history, studio art, and art education courses (combined) toward graduation; they must complete 56 s.h. of credit in non-School of Art and Art History courses in order to graduate with a major in art history.

Students also must complete the College of Liberal Arts and Sciences General Education Program.

The major in art history requires the following courses.

All of these, taken before enrollment in courses 099 and above:

01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:007 Writing About the Visual Arts 3 s.h.

One of these:

01H:002 Arts of Africa 3 s.h.
01H:016 Asian Art and Culture 3 s.h.
All of these:

Three courses chosen from 01H:020 - 01H:098, excluding 01H:029  
01H:099 Undergraduate Seminar in the History of Art (taken fall of junior or senior year)  
Five upper-level courses chosen from 01H:100 - 01H:199  

9 s.h.  
3 s.h.  
15 s.h.

Required studio course:

01A:003 Basic Drawing  
3 s.h.

Additional studio course—one of these:

01C:060 Ceramics I  
01F:007 Life Drawing I  
01G:084 Introduction to Jewelry and Metal Arts  
01K:009 Painting I  
01M:011 Introduction to Printmaking  
01N:015 Undergraduate Sculpture I  
3 s.h.  
3 s.h.  
3 s.h.  
3 s.h.  
3 s.h.

CREDIT IN DISCIPLINES OUTSIDE ART HISTORY

Art history students must take courses in at least three of the following disciplines, for a total of 12 s.h.: anthropology, classics, history, literature, philosophy, political science, religion, sociology, or others. Courses must be approved by the student's faculty advisor.

Transfer Students

Transfer students planning to major in art history should meet with the undergraduate advisor to discuss the requirements they may fulfill with transfer courses. Art history transfer courses must be reviewed by the art history division head to determine the student's placement in or exemption from required art history courses.

Study Abroad

Students who wish to study abroad must meet with the undergraduate advisor and the head of art history before they depart to review approval of the art history courses they plan to take. Upon their return, they meet with the art history division head to review their art history course work and confirm the credit they have earned.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

B.A. in Art

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least four courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least eight courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 11 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.F.A. in Art

Admission to the program leading to the B.F.A. in art is limited and depends on the department's evaluation of the student's work. In order to participate in the Four-Year Graduation Plan, students must be admitted to the degree program on schedule as determined by the art advisor.

Before the third semester begins: at least four courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least eight courses in the major, and at least one-half of the semester hours
required for graduation

**Before the seventh semester begins:** at least 14 courses in the major and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** at least 18 courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**B.A. in Art History**

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** at least four courses in the major and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** at least eight courses in the major and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** at least 11 courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

School of Art and Art History students who are members of the University of Iowa Honors Program may apply for honors in the art or art history major during the semester before graduation. In order to graduate with honors in art or art history, students must fulfill specific department requirements as described under "Honors in Art" and "Honors in Art History" below.

University of Iowa honors students must maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information about honors study at Iowa).

**Honors in Art**

Honors students majoring in art must maintain a g.p.a. of at least 3.50 in the major. In order to earn a degree in art with honors, a student must complete an honors project supervised by a faculty member, prepare a statement of the sources of the studio work, and hold an exhibition of the honors project. The artist's statement can address the history of art, the history of ideas, or a personal philosophy and should be written under the supervision of faculty in the student's studio concentration area. Students must register for 01P:190 Honors in Studio Art (0-3 s.h.).

**Honors in Art History**

Honors students majoring in art history must maintain a g.p.a. of at least 3.50 in the major. Students have two options for earning a degree in art history with honors.

**Option 1:** Students take two upper-division courses with honors designation and complete an extra project, such as an annotated bibliography, a supplemental paper or presentation, or a comparable project endorsed by the instructor. Then students enroll in a third upper-division course appropriate to their honors thesis topic and write the thesis (5,000 to 7,000 words) as part of the course, for an additional 1 s.h. Students register for 01H:190 Honors Research in Art History (arr.).

**Option 2:** Students research and write an honors thesis of 10,000 to 15,000 words under the direction of an art history faculty member, earning 3 s.h. They register for 01H:190 Honors Research in Art History (arr.). Students work with an art history faculty member as their honors thesis advisor. They must have the thesis advisor's approval before beginning work on their thesis project. The thesis should conform to the Graduate College format for theses; see the Manual of Rules and Regulations of the Graduate College in the Graduate College section of the Catalog. The title page must follow the University of Iowa Honors Program format; consult the Honors Program.

**Minor in Art**

The minor in art requires a minimum of 16 s.h. in art courses, including at least 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include 01A:003 Basic Drawing (or an equivalent), and 12 s.h. of studio art (one introductory course and one advanced course in each of two studio areas). Students may substitute one art history course for one of the advanced studio courses. Before registering for a course, students must satisfy all prerequisites for the course.

Courses in art education, bookbinding, calligraphy, graphic design, and papermaking, and courses with prefixes 01B
and 01P do not count toward the minor in art.

Course work applied toward the minor in art may not be used to satisfy requirements for a major in art or in art history.

**Minor in Art History**

The minor in art history requires a minimum of 15 s.h. in art history courses, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, courses numbered 01H:021 Introduction to the Art of West Africa and above are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include one survey-level course chosen from 01H:002 Arts of Africa, 01H:005 Western Art and Culture Before 1400, 01H:006 Western Art and Culture After 1400, or 01H:016 Asian Art and Culture. Before registering for a course, students must satisfy all prerequisites for the course.

Course work applied toward the minor in art history may not be used to satisfy requirements for a major in art or art history.

**Graduate Programs**

The School of Art and Art History offers a Master of Arts and a Master of Fine Arts in art, and a Master of Arts and a Doctor of Philosophy in art history. The Master of Arts in art includes an art education option. The school also collaborates with the College of Education to offer an art education subtrack in the Doctor of Philosophy in education.

Prospective and current graduate students are encouraged to consult the online Art and Art History Graduate Bulletin for detailed information about graduate study in art.

**Master of Arts in Art**

The Master of Arts in art requires a minimum of 38 s.h. of graduate credit. The degree is offered with or without thesis and with majors in ceramics, design, drawing, intermedia and video art, metalsmithing and jewelry, painting, photography, printmaking, and sculpture.

The required 38 s.h. includes at least 12 s.h. in a major studio area; 6 s.h. in a minor studio area from one of the M.A. majors that offer at least 21 s.h. in studio courses; 3 s.h. in the history and theory of art, excluding readings and directed studies; a drawing course taken at The University of Iowa; and 6 s.h. of courses outside art and art history.

M.A. students must hold a B.A. or B.F.A. in art equivalent to that offered by The University of Iowa. Undergraduate deficiencies, if any, may be made up concurrently with graduate study but do not count toward the graduate degree requirements.

All M.A. students undergo a division-wide review for M.A. candidacy by the faculty during the third semester in residence. They also must submit a written artist's statement.

M.A. students choose the thesis or nonthesis option in consultation with their area advisor. They may earn 1 s.h. for writing a technical or substantial thesis by registering for 01A:302 M.A. Written Thesis, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

For more detailed information, consult the Art and Art History Graduate Bulletin.

**Master of Arts in Art, with Art Education**

The Master of Arts in art, with art education, requires 38 s.h. of graduate credit. Students must earn 18 s.h. of studio art and art history in a ratio of two to one (either 12 s.h. of graduate credit in studio art and 6 s.h. in art history, or 6 s.h. in studio art and 12 s.h. in art history); 8 s.h. in graduate seminars in art education; and 12 s.h. to be specified after the student begins the program. The degree also requires a written thesis based on research in art education, creative scholarship, or art history.

M.A. students must hold a B.A. or B.F.A. in art equivalent to that offered by The University of Iowa. They also must hold teaching licensure/certification in art. See "Admission" later in this Catalog section.

Art education majors may elect to take art history courses on a satisfactory-unsatisfactory basis.

**Master of Fine Arts in Art**

The Master of Fine Arts in art requires a minimum of 60 s.h. of graduate credit. The degree is offered with thesis and with majors in ceramics, design, drawing, intermedia and video art, jewelry and metal arts, painting, photography, printmaking, or sculpture. Following completion of the M.A., students may be invited into the M.F.A. Program.

The required 60 s.h. includes at least 18 s.h. in a major studio subject; at least 9 s.h. in a minor studio field selected
from the fields listed above; 6 s.h. in art history and theory of art; 6 s.h. in courses originating outside the school; and a drawing course at The University of Iowa (if not already taken).

M.F.A. students must hold an M.A. in art equivalent to that offered by The University of Iowa. Transfer credit is decided by faculty review.

All students must undergo an M.F.A. committee review. They also must complete a written theses and possibly a studio thesis.

M.F.A. students may earn 1 s.h. for writing a technical or substantial thesis by registering for 01A:304 M.F.A. Written Thesis, with approval of the thesis supervisor. Thesis credit earned in an M.A. program is not applicable toward M.F.A. requirements.

Master of Arts in Art History

The Master of Arts in art history requires a minimum of 30 s.h. of graduate credit and is offered with thesis. M.A. students are expected to acquire a broad knowledge of art history and to become familiar with major periods and monuments of world art. They also become proficient scholars, receiving training in research methods and theory necessary for subsequent scholarship at the Ph.D. level.

M.A. students must maintain a g.p.a. of at least 3.50. Only one semester of academic probation is allowed. All M.A. candidates, including transfer students, must take at least 24 s.h. in residence at The University of Iowa.

M.A. students in art history must earn a grade of B or higher in semester-long courses (100-level or above) in five of the following 10 distribution fields: African (including Oceanic), architecture, Asian, ancient (3000 B.C.E.-300 C.E.), medieval, Renaissance, Baroque, 18th- and 19th-century European, American (including pre-Columbian, Native American, and African American), and modern/contemporary. These courses must be taken after the B.A. is granted.

M.A. students must complete a substantial thesis that demonstrates their ability to conduct scholarly research and convey ideas in writing appropriately for the discipline and for the student's specialization field.

REQUIRED COURSES

M.A. students in art history must satisfactorily complete 01H:200 History and Methods (3 s.h.) during their first fall semester of enrollment and must register for an art history seminar in their first, second, and third semesters of enrollment. They also must satisfactorily complete 01H:210 Art History Colloquium (1 s.h.) every semester that they are enrolled for 9 s.h. or more; students who register for less than 9 s.h. are strongly encouraged to attend the colloquium, as well.

Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit. Cross-referenced courses not taught by art history faculty members also do not carry art history credit.

DIRECTED STUDIES

Directed Studies (01H:300) is designed for graduate students who already have taken one or more advanced courses in a specific art history field. It provides students with an opportunity to work one-to-one with a professor to continue specific research interests developed in lecture courses or seminars, or on topics that eventually may be the subject of a thesis or dissertation. Directed Studies cannot be substituted for a lecture course already offered in the program. Students must discuss their decision to take Directed Studies with the professor involved and have the professor's approval. The Directed Studies topic must be within the professor's range of expertise.

Students meet with their Directed Studies professor once a week. The hours of work and written assignments required for Directed Studies must be equal to a comparable regularly scheduled course. Directed Studies is not available through Guided Correspondence Study.

LANGUAGE REQUIREMENT

M.A. students must demonstrate proficiency in French or German by the end of their third semester. Proficiency is determined by a translation exam administered under the direction of the art history division. Credit earned in language courses does not count toward the degree.

M.A. COMMITTEE

The M.A. committee consists of the student's M.A. thesis advisor and two additional tenured or tenure-track faculty members in art history.

M.A. THESIS
M.A. students must complete a written thesis on a topic chosen from one of the 10 distribution fields (see "Master of Arts in Art History" above). Students register for 01H:302 M.A. Written Thesis and may count 3 s.h. of thesis credit toward graduation. Students choose an M.A. thesis advisor who specializes in their concentration field. Students who wish to concentrate in more than one field must work closely with faculty members in both fields.

**FINAL EXAMINATION**

The final examination constitutes an oral defense of the written M.A. thesis. The final examination meeting with the M.A. committee normally takes place toward the end of the student's last semester of course work.

**Doctor of Philosophy in Art History**

The Doctor of Philosophy in art history requires a minimum of 72 s.h. of graduate credit. Ph.D. students are expected to acquire great breadth and depth of knowledge in the discipline of art history, achieve a high level of expertise in a specialized field, and demonstrate professional speaking and writing skills. The program provides them with scholarly challenges, research skills, and mentoring necessary for professional development and successful careers.

Ph.D. students must maintain a g.p.a. of at least 3.50. They may count a maximum of 38 s.h. of work completed for the M.A. toward the Ph.D. Students are allowed only one semester of academic probation.

To establish academic residency, doctoral students must be enrolled full-time (at least 9 s.h.) at The University of Iowa for two semesters beyond their first 24 s.h. of graduate study; or they must enroll for at least 6 s.h. in each of three semesters during which they hold an assistantship of one-quarter-time or more. Resident tuition is assessed for assistantship semesters and adjacent summer sessions.

Ph.D. students major in one of the following 10 distribution fields: African (including Oceanic), architecture, Asian, ancient (3000 B.C.E.-300 C.E.), medieval, Renaissance, Baroque, 18th- and 19th-century European, American (including pre-Columbian, Native American, and African American), and modern/contemporary. Students also minor in two fields. The first minor must be in an art history distribution field that is not contiguous with the major field; the second may be in any art history distribution field or in a relevant discipline outside of art history, subject to the faculty's approval.

Ph.D. students must complete a publishable dissertation that makes an original contribution to the art history discipline and demonstrates evidence of superior understanding of critical issues in the student's chosen specialization field.

For more detailed information, consult the Art and Art History Graduate Bulletin.

**REQUIRED COURSES**

Ph.D. students must satisfactorily complete 01H:200 History and Methods (3 s.h.), even if they have completed a similar course at another institution (students who have completed the course for a master's degree or other previous work at Iowa are exempt). They must register for an art history seminar in their first three semesters of Ph.D. course work (or in their fifth, sixth, and seventh semesters of graduate study), before the Ph.D. readings course and comprehensive exam. They also must satisfactorily complete 01H:210 Art History Colloquium (1 s.h.) every semester that they are enrolled for 9 s.h. or more; students who register for less than 9 s.h. are strongly encouraged to attend the colloquium, as well.

Up to 6 s.h. of credit for dissertation research may be applied toward the 72 s.h. required for the degree. Courses outside the curriculum of the School of Art and Art History's art history division do not carry art history credit.

**DIRECTED STUDIES**

Normally, a maximum of 6 s.h. earned in 01H:300 Directed Studies may be applied toward the semester-hour requirement for the Ph.D., although doctoral students may petition the art history faculty for permission to apply up to 9 s.h.

**LANGUAGE REQUIREMENT**

Students must demonstrate proficiency in French or German for admission to the Ph.D. program. They also must demonstrate proficiency in a second non-English language relevant to their research area by the end of their third semester of Ph.D. work or before their dissertation topic is approved. Proficiency is determined by a translation exam administered under the direction of the art history division. Credit earned in language courses does not count toward the degree.

**PH.D. COMMITTEE**
The Ph.D. committee consists of the student's faculty mentor, who is responsible for the major field, two members responsible for the two minor fields, and at least two additional members. Of these five, four must be tenured or tenure-track faculty members from the art history division. One must be from outside the division and must be a member of the Graduate College faculty. When appropriate, committees may include additional members.

COMPREHENSIVE EXAMINATION

Upon completion of course requirements, the Ph.D. candidate takes three written comprehensive examinations. The major exam consists of six questions and lasts six hours; the two minor exams each consist of three questions and last three hours. The exams normally are taken on two consecutive days.

The scope of the comprehensive exams is determined in consultation with the candidate’s degree committee supervisor and the committee members responsible for the two minor fields.

ORAL COMPREHENSIVE EXAMINATION

Within approximately one month of completing the three written exams, the candidate meets with his or her degree committee for the oral comprehensive examination, which concentrates on questions that arise from the written comprehensive exams.

DISSERTATION PROPOSAL

As soon as possible after completing the comprehensive examinations, the candidate submits a dissertation proposal to his or her degree committee supervisor and subsequently to the degree committee. The committee meets as a group with the candidate to discuss the dissertation proposal and to offer comments and suggestions. (The proposal must be submitted to the committee at least two weeks before the approval meeting.) The proposal includes a 1-2 page abstract, a 10-15 page précis (including a review of the state of the field), and a bibliography.

After the proposal has been approved by the committee, the candidate circulates an abstract to the entire art history faculty. He or she must give a public presentation on the dissertation topic no later than the end of the semester following the degree committee's approval. The presentation is scheduled with the head of art history.

FINAL EXAMINATION

The completion of a written dissertation, which constitutes an original scholarly contribution to the field, and the successful completion of the final examination (the oral defense) of this dissertation fulfill the Ph.D. requirements.

Ph.D. in Education, with Art Education

The Doctor of Philosophy in education, with art education, requires a minimum of 60 s.h. of graduate credit beyond the master's degree. The program gives college teachers and researchers in art education and art supervisors in state departments of education and school systems an opportunity to continue their inquiry and creative work in art history and in studio art.

The program is administered by the College of Education, in cooperation with the School of Art and Art History. Students must apply for admission to the College of Education. Graduates are granted a Doctor of Philosophy in education, with art education subtrack.

The curriculum must be planned with the advisor and must include at least 15 s.h. in the School of Art and Art History, 15 s.h. in art education graduate seminars, 15 s.h. in a related area (e.g., aesthetics, anthropology, higher education, psychology, sociology), and 15 s.h. in thesis and tool courses.

Students must take both oral and written comprehensive examinations. The written examination consists of an in-depth research problem to be completed within 14 days, after which an oral examination on the project is held. The research problem is assigned by the examining committee, and the written portion of the examination is not intended to relate directly to the student's dissertation proposal.

Students also must complete a written dissertation for at least 12 s.h. of credit and are expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral examination on the dissertation is the Ph.D. final examination.

Admission

Prospective graduate students must meet the School of Art and Art History's admission requirements for the specific degree programs they plan to enter. Prospective students must submit application materials to the University's Office
of Graduate Admissions and to the specific program they wish to enter. Program-specific application requirements and
deadline dates are listed in the appropriate sections below.

All applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and
Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants to all art and art history graduate programs must submit the following to the University's Office of Graduate
Admissions: a completed graduate application form (one area of interest must be specified on the form); an official
copy of all transcripts of undergraduate and/or graduate work completed by the application date; TOEFL scores (if
applicable); and the required application fee. Art history applicants also must submit Graduate Record Examination
(GRE) scores.

Applicants whose first or official language is not English and whose previous academic degrees were not earned at an
English-language institution must score as follows on the Test of English as a Foreign Language (TOEFL): for studio art
applicants, at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based); for art history applicants, at least
600 (paper-based), 250 (computer-based), or 100 (Internet-based).

Deadline dates for submission of materials to the Office of Graduate Admissions are December 15 for art history
programs, and February 1 for studio art programs and art education programs; all are for fall admission.

The Office of Graduate Admissions notifies all applicants by mail of admission decisions. Acceptance notification
cannot be given over the phone by either the admissions office or the School of Art and Art History.

M.A. and M.F.A. in Art

Applications to the M.A. and M.F.A. programs in studio art, with all supporting materials and requests for financial aid,
must be received at the School of Art and Art History and the Office of Graduate Admissions by February 1 for fall
admission.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), applicants must
submit the following materials to the graduate secretary at the School of Art and Art History: a one-page statement of
purpose, official transcripts for all undergraduate and graduate work completed by the application date, three letters of
recommendation assessing potential as a graduate student, application for graduate awards (if desired), and
application for graduate scholarships and fellowships (if desired). They also must submit one of the following portfolios
(portfolios are returned by mail only to applicants who supply return postage.).

Note: CDs should contain 10-20 images measuring 5x7 inches, maximum of 150 DPI, as PDF or PowerPoint files.

**Ceramics, design, intermedia and video art, jewelry and metal arts, or painting:** 8 slides, CDs, and/or photos of
work in the major area; and 2 slides, CDs, or photos of work in a second studio area; CDs or DVDs may be submitted
for intermedia.

**Drawing:** 8 slides, a CD, or photos of drawings, including figure drawings; and 2 slides, CDs, or photos of work in a
second studio area.

**Photography:** 20 images of major field of work on slides, in prints, or on a CD; and 2-3 images in a second area on
slides, in photos, or on a CD.

**Printmaking:** 10-20 images on a CD, or slides with a selection of 4-6 original printed works, sent in a returnable
portfolio.

**Sculpture:** a selection of 20 slides or a CD with at least 10 sculptures or installations (multiview) and a slide of at least
two drawings; for kinetic sculptures, a DVD.

Each slide must be enclosed in a slide sheet and labeled with the name, title, portfolio medium, size, and approximate
date of work; the top should be indicated. An inventory list with the same information should be included. Extreme care
is taken in handling all portfolios, but the school cannot be responsible for reimbursement in the event of loss or
damage.

Applications and all supporting materials are reviewed by a committee of art and art history faculty from the appropriate
area.

M.A. in Art History

Applications to the M.A. program in art history, with all supporting materials and requests for financial aid, must be
received at the School of Art and Art History and the Office of Graduate Admissions by December 15 for fall admission
in the following year.

Applicants must hold a bachelor's degree, preferably in art history or a related field.

Although exceptions may be made when other components of the application are strong, applicants should have a
combined verbal and quantitative score of at least 1200 and an analytical writing score of at least 5 on the Graduate
Record Exam (GRE) General Test; and an undergraduate g.p.a. of at least 3.25 on a 4.00 scale.

In addition to materials submitted to the Office of Graduate Admissions (see “Admission” above), the following materials must be submitted to the graduate secretary at the School of Art and Art History: transcripts from all colleges and universities the applicant has attended; three letters of recommendation assessing the applicant's potential for graduate study in art history (sent by the person making the recommendation); and a research paper (preferably from an art history course) or undergraduate thesis that demonstrates the applicant's potential to undertake research in art history.

Applicants also must submit a 1,000-word personal statement describing their intellectual development, academic interests, and career goals; the statement must name the University of Iowa faculty member under whose guidance the applicant hopes to work and tell how that faculty member's area of expertise, or how the art history program, is especially suited to the applicant's interests and goals.

Applicants to graduate programs in art history should consult the Art and Art History Graduate Bulletin on the School of Art and Art History web site.

**Ph.D. in Art History**

Applications to the Ph.D. program in art history, with all supporting materials and requests for financial aid, must be received at the School of Art and Art History and the Office of Graduate Admissions by December 15 for fall admission in the following year.

Applicants must hold an M.A. in art history or a related graduate degree and must be able to demonstrate proficiency in French and German. Proficiency in a second non-English language relevant to the student's research area is required by the end of the third semester of Ph.D. work; see "Language Requirement" under "Doctor of Philosophy in Art History" above.

Although exceptions may be made when other components of the application are strong, applicants should have a combined verbal and quantitative score of at least 1200 and an analytic writing score of at least 5 on the Graduate Record Exam (GRE) General Test; and a graduate g.p.a. of at least 3.50 on a 4.00 scale.

Students who completed an M.A. at The University of Iowa and who wish to apply for entrance into the Ph.D. program must make a formal application to the program. Applications are evaluated in the context of the entire applicant pool.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), the following materials must be submitted to the graduate secretary at the School of Art and Art History: transcripts from all colleges and universities the applicant has attended; three letters of recommendation, including one from the applicant's M.A. thesis supervisor, assessing the applicant's potential for doctoral study in art history (sent by the person making the recommendation); and a copy of an M.A. thesis or other substantial M.A. research paper.

Applicants also must submit a 1,000-word personal statement describing their purpose in pursuing graduate studies and their intellectual development, academic interests, and career goals; the statement must name the University of Iowa faculty member under whose guidance the applicant hopes to work and how that faculty member's area of expertise, or the art history program, is especially suited to the applicant's interests and goals.

Applicants to graduate programs in art history should consult the Art and Art History Graduate Bulletin on the School of Art and Art History web site.

**M.A. in Art Education**

Applications to the M.A. program in art education, with all supporting materials and requests for financial aid, must be received at the School of Art and Art History and the Office of Graduate Admissions by February 1 for fall admission.

Applicants to the M.A. program must hold a B.A. or B.F.A. in art equivalent to that offered by The University of Iowa. They also must hold teaching licensure/certification in art.

Applicants with course work deficiencies are required to remedy the deficiencies by taking appropriate courses.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), M.A. applicants must submit the following materials to the graduate secretary at the School of Art and Art History: a term paper or other example of ability to write in the field; a selection of slides or photographs of their creative work in two studio areas; three letters of recommendation assessing their potential for graduate study; and a one-page personal statement describing their purpose for pursuing graduate study.

**Ph.D. in Art Education**

Applications to the Ph.D. program in art education, with all supporting materials and requests for financial aid, must be received at the College of Education and the Office of Graduate Admissions by February 1 for fall admission.

Applicants to the Ph.D. program must hold an M.A. in art education from The University of Iowa or an equivalent degree from an accredited college or university. They also must have completed one year of successful teaching
experience in an elementary or secondary school.

Applicants with course work deficiencies are required to remedy the deficiencies by taking appropriate courses.

In addition to materials submitted to the Office of Graduate Admissions (see "Admission" above), Ph.D. applicants must submit the following materials to the Art Education Office: a portfolio consisting of 12 colored slide reproductions of their art work and two examples of their written work, which may be new or previous work.

Financial Support

Fellowships, teaching assistantships, research assistantships, and tuition scholarships are awarded to graduate students on the basis of artistic and/or scholarly record.

In the studio programs, financial aid to new students is possible, but most assistantships and scholarships are awarded to graduate students who have been in residence for at least a year. This gives faculty members an opportunity to observe their performance and potential.

Presidential Graduate Fellowships

The Graduate College awards Presidential Graduate Fellowships on the basis of a University-wide competition among incoming Ph.D. students. For information about the fellowships, including nomination and selection criteria and stipends, see Presidential Graduate Fellowship on the Graduate College web site.

Dean's Graduate Fellowships

The Graduate College awards Dean's Graduate Fellowships on the basis of a University-wide competition among graduate students. Criteria for the fellowships are similar to those for the Presidential Graduate Fellowship but are designed to support incoming students who are underrepresented in graduate education. For more information, see Dean's Graduate Fellowship on the Graduate College web site.

Teaching and Research Assistantships

Assistantships are awarded to graduate students on the basis of academic record, Graduate Record Examination (GRE) General Test scores, promise as scholars or artists, and demonstrated ability to do the job. Quality of performance in one's graduate program at Iowa is generally the major criterion for awarding teaching assistantships. The number of hours of work required depends on the amount of the award.

Scholarships and Fellowships

The School of Art and Art History offers a variety of scholarships and fellowships made possible by contributions from alumni who wish to support promising artists and scholars. These awards are made on the same basis as teaching and research assistantships.

Information and application materials for graduate scholarships and fellowships are included in the admissions package. They also are available from the School of Art and Art History main office in Seashore Hall.

Renewal or reappointment for fellowships and assistantships depends on adequate progress toward the degree (graduate students must accumulate at least 18 s.h. of graduate credit each calendar year and maintain a grade-point average above the required minimum) and satisfactory performance of assistantship duties.

Decisions on assistantships and financial aid generally are made during the latter part of the spring semester for the following academic year. Applications and all relevant materials should be on file by February 1. Applicants should verify the submission date; consult the school's main office.

Student Organizations

The undergraduate Art History Club and the graduate Art History Society sponsor activities for students. The Faculty/Graduate Student Art History Colloquium meets five times each semester to focus on professional development and issues of broad interest in art.

Resources and Facilities

Reference Collections

The art library contains 100,000 volumes, an outstanding periodical collection, and an extensive microfilm and microfiche archive.

The school's Office of Visual Materials contains 350,000 slides, 30,000 photographs, a videotape library, and a rapidly growing database that currently contains more than 125,000 digital images.
Museum of Art
The University of Iowa Museum of Art has a significant permanent collection that includes major holdings of 20th century and contemporary art, African and pre-Columbian art, English and American silver, European and American prints, drawings and photographs, and Etruscan, Iranian, and contemporary American ceramics. As well as serving as a resource for research in a wide variety of art history areas, the museum offers a program of exhibitions, lectures, and recitals.

Due to the Iowa River flooding of summer 2008, the museum’s collections are being displayed and its events are being held in a variety of other facilities. Learn about current exhibitions and events, and their locations, by visiting the Museum of Art web site.

Interdisciplinary Resources
Colloquia, visiting artists and lecturer programs, and graduate workshops bring visitors to the school and provide open forums for discussion of issues in art and scholarship.

Among the school's major assets is the Project for the Advanced Study of Art and Life in Africa (PASALA), an interdisciplinary program that brings together faculty with international reputations in art history, anthropology, films, history, and literature to offer courses and independent study of art in West, Central, East, and South Africa. The result is a program of unusual breadth and depth of expertise. PASALA is among the most active of such programs in the country, organizing international symposia that discuss significant topical issues and publishing the proceedings in regular issues of Iowa Studies in African Art. PASALA offers scholarships and support for research in Africa and dissertation preparation to outstanding students. A major resource for PASALA is the Stanley Collection of African Art in The University of Iowa Museum of Art.

Art history participates in a collegewide program called Crossing Borders, which offers major financial support to designated graduate student fellows whose dissertation topics involve multiple foreign language areas. Fellows take team-taught seminars in a range of disciplines, with focus on interactions across cultural, regional, or national divides. They help plan an annual convocation, at which they and invited lecturers present their research.

The school also maintains an affiliation with the University's Department of American Studies, providing students with opportunities to study not only the history of American art but a variety of interdisciplinary programs in American history, literature, and politics.

Art Buildings
The School of Art and Art History's permanent facilities are temporarily closed while The University of Iowa renovates and rebuilds its arts campus in the wake of flooding on the Iowa River during summer 2008. The school's main office currently is located in Seashore Hall on the University's central campus, and classrooms and studio arts facilities are housed in a variety of locations. Visit the School of Art and Art History web site and ISIS for information about studio, office, and classroom sites.

The school's newest building and administrative center, Art Building West, opened in 2006. The building contains art history classrooms, the visual resources office, a gallery, a café, the Art Library, an auditorium, a media theater, a computer laboratory, and studios for graphic design, painting, and digital photography. Designed by architect Steven Holl, Art Building West has won numerous awards for its innovative design, including the 2007 American Institute of Architects Honor Award for Architecture.

Art and Art History Courses

Art History, Primarily for Undergraduates

01H:001 Art and Visual Culture 3 s.h.
Developments in Western art history from prehistoric times (ca. 25000 BCE) to the present; key monuments in architecture, painting, and sculpture in their wider cultural contexts; 19th- and 20th-century new media, such as photography. GE: Fine Arts, Humanities.

01H:002 Arts of Africa 3 s.h.
Arts, artists, and cultures of Africa; sculpture, paintings, pottery, textiles, architecture, human adornment. GE: Fine Arts, Humanities.

01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
GE: Cultural Diversity, Fine Arts, Humanities.

01H:004 Masterpieces: Art and Cultural Paradigms 3 s.h.
Masterpieces of Western art—how to look at, think about, and understand some of the world's most exciting works of architecture, painting, and sculpture; works from ancient Greece to Versailles under the absolute power of the Sun King; their construction, hidden meanings, historical content, and their meanings today. GE: Fine Arts, Humanities.

01H:005 Western Art and Culture Before 1400  3 s.h.
Survey to foster development of critical skills in thinking and writing about visual culture, and to familiarize students with broad outlines of artistic development in the Western tradition, from prehistory through later Middle Ages; aesthetic qualities of artworks, relationship between style, function, and meaning. GE: Fine Arts, Foreign Civilization & Culture, Historical Perspectives.

01H:006 Western Art and Culture After 1400  3 s.h.
Survey of the Western world's visual arts from Renaissance (ca. 1400) to the present; major movements and principal masters of Western Europe and the United States in their social and historical contexts; focus on stimulation of visual literacy and familiarity with outstanding cultural monuments. GE: Fine Arts, Foreign Civilization & Culture, Historical Perspectives.

01H:007 Writing About the Visual Arts  3 s.h.
Opportunity to develop understanding of and skill in using visual-arts writing conventions and linguistic competencies that are necessary for academic and professional success; formats such as exhibition reviews, art criticism, research writing, artist's statements; experience through exercises, formal essays, revision, workshops. Prerequisite: fulfillment of General Education rhetoric requirement. Same as 01A:005.

01H:008 Themes in Global Art  3 s.h.
Key themes in art from a global perspective; propaganda and power, social functions of art, word and image, ritual and body decoration, artistic exchange, religion. GE: Foreign Civilization & Culture.

01H:010 Tutorial for Majors: Art History as a Discipline  3 s.h.
Introduction to the discipline of art history, its historiography and methodology, and its practice in academia and the museum world; research methods, organization. Prerequisite: art history major or consent of instructor.

01H:016 Asian Art and Culture  3 s.h.
Art from India, China, and Japan in many media and forms, in their cultural and historical contexts; cultural distinctions of these Asian civilizations as seen through the visual arts; chronology used to highlight historical processes and provide perspectives on continuity and change. GE: Fine Arts, Foreign Civilization & Culture, Historical Perspectives. Same as 039:016.

01H:021 Introduction to the Art of West Africa  3 s.h.
Introduction to the visual arts of West Africa, including Burkina Faso, Mali, Nigeria, Ivory Coast, Liberia, Guinea, Ghana, and Sierra Leone; arts in cultural contexts—what objects meant to the people who created them, how they mirrored social, educational, political, and economic systems.

01H:022 Introduction to the Art of Central Africa  3 s.h.
Artistic production and media in Central Africa categorized by geographies but examined from perspectives of innovation, power, gender, performance, ancestry, religious beliefs, technology, death, and the body; breadth of Central Africa's artistic production, art history, and terminology; 20th-century debates around African art.

01H:026 Introduction to Ancient Art  3 s.h.
Art and architecture of the Mediterranean world ca. 3500 B.C.E. to death of Constantine (337 C.E.): Egyptian, Cycladic, Minoan, Mycenaean, Greek, Etruscan, and Roman cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, religion. Prerequisite: 01H:005 or consent of instructor. Same as 20E:026.

01H:029 First-Year Seminar  1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

01H:031 Introduction to the Art of China  3 s.h.
Visual arts of China and their history; emphasis on understanding in context of Chinese civilization, history. Same as 039:028.
01H:033 Introduction to the Art of Japan
Chronological survey of Japan's visual arts in their historical and cultural contexts from Neolithic age to present; extensive use of slides, films, other visual materials. Same as 39J:033.

01H:040 Introduction to Medieval Art
How Medieval art has been known, collected, and appreciated in America; neomedieval buildings, exceptional museum holdings in New York; periodization, terminology, genres, styles, sources, original context, later history, and cultural impact of selected Medieval works of art in America.

01H:047 Introduction to Renaissance Art
Art, architecture in Europe from early Renaissance to 1600.

01H:053 Introduction to Baroque Visual Culture
Art, architecture in Europe from 1600 to 1700.

01H:062 Introduction to Nineteenth-Century Art
Major European artists, works, movements, aesthetic theories from late 18th century to 1900; works in their aesthetic, cultural, intellectual, political contexts; boundaries, definitions of movements such as Neo-Classicism, Romanticism, Realism, Impressionism, Post-Impressionism, Symbolism.

01H:066 Introduction to American Art
Survey of painting, sculpture, architecture, and photography in the United States from colonial era to mid-20th century; how the new country grappled with creating a visual culture unique to its own character and development; portraits, landscape paintings, sculpture, and architecture in an array of styles and media; circumstances of their creation, aspirations and preconceptions of their makers, perspectives of their audiences. Recommended: 01H:006. GE: Fine Arts, Humanities.

01H:073 Introduction to Modern/Contemporary Art
Modern European and American painting, sculpture, and architecture from 1880 to present; major art movements of modern art history. Prerequisite: 01H:005 or consent of instructor.

01H:084 Introduction to European Architecture
Overview of European monuments, Neolithic period to present; aesthetic and structural principles, major styles, architects.

01H:090 Introduction to Art and Religion
How religious and cult practices have influenced the shape of objects and monuments now considered superb examples of art and architecture; late antiquity to Renaissance; case studies; focus on initiation rituals.

01H:098 Undergraduate Topics in Art History
Varied topics in art history; for undergraduates. Prerequisite: art history major or consent of instructor.

01H:099 Undergraduate Seminar in the History of Art
Characteristic problems, methodological issues, critical thinking and writing. Offered fall semesters. Prerequisite: art history major or consent of instructor.

Art History for Undergraduate and Graduate Students
An introductory course in the appropriate art history area or consent of instructor is prerequisite for some courses numbered above 100. Courses designated "Themes in Art History" consider topics of current interest in the field, organized thematically rather than chronologically.

01H:104 American Indian Art
Sculpture, painting, architecture, crafts, arts of personal adornment of native peoples of North America. GE: Cultural Diversity.

01H:105 Art of Pre-Columbian America
Art, architecture of Mexico, Peru before Cortéz.
01H:106 African Kings
African art created to reflect the political and military power of African rulers; in-depth study.

01H:107 Art of West Africa
How art is used to solve problems and mark important passages in life.

01H:110 Egyptian Art
Sculpture, painting, architecture, and luxury arts from Pyramid Age to Death of Cleopatra. Prerequisite: 01H:005 or consent of instructor. Same as 032:104.

01H:119 Chinese Art and Culture
Archaeological discoveries, sculpture, painting, architecture, calligraphy, other arts of Greater China area in historical and cultural contexts of past 5,000 years. Prerequisite: 01H:006 or 01H:031 or consent of instructor. Same as 039:159.

01H:120 Chinese Painting I
Early Chinese painting from fourth century B.C.E. through 14th century C.E.; figural style, religious art, emergence of landscape, other nonreligious subjects, interconnectedness of painting and calligraphy as fine arts. Prerequisite: 01H:016 or 01H:031 or consent of instructor. Same as 039:120.

01H:123 Japanese Painting
Japanese painting in its historical, cultural contexts; focus on developments of successive eras--religious art; narrative, other literary connections; Zen; decorative traditions; popular arts; Japan and the modern world. Prerequisite: 01H:006 or 01H:033 or consent of instructor. Same as 39J:123.

01H:124 Themes in Asian Art History
Prerequisite: 01H:016 or 01H:016 or equivalent or consent of instructor. Same as 039:131.

01H:127 Classical Greek Art
Art, sacred architecture from early Classical through late fourth century B.C.E.; Athens in the Golden Age. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:124.

01H:128 Greek Vase Painting
Greek ceramics as documents of religious beliefs, mythology, and daily life 1000-300 B.C.E. Prerequisite: 01H:005 or 01H:026 or consent of instructor.

01H:132 Art of Early Rome: Patrons and Politics
Art and architecture of Roman Italy and provinces from late Caesar Republic through reign of Hadrian, 80 B.C.E.-138 C.E. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:128.

01H:133 Later Roman Art
Art and architecture of late imperial Rome and the provinces, from the Antonines through Constantine, C.E. 138-337. Prerequisite: 01H:005 or 01H:026. Same as 20E:130.

01H:134 Art and Culture in Ancient Pompeii
Art and architecture, as documents of ancient society and religion in towns destroyed by Mount Vesuvius in C.E. 79. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 20E:129.

01H:138 Gothic Architecture
Gothic architecture and its history, from varied perspectives (e.g., formal structural, symbolic, geometric, socioeconomic). Prerequisite: 01H:005 or 01H:040 or consent of instructor.

01H:140 The World of Giotto and Dante
Painting, sculpture, and architecture 1250-1400. Prerequisite: 01H:005 or 01H:006 or consent of instructor.

01H:141 Masaccio to Leonardo da Vinci
Painting, sculpture, and architecture 1400-1525. Prerequisite: 01H:005 or 01H:006 or consent of instructor.

01H:142 Leonardo, Raphael, and Their Contemporaries
The arts in Italy 1485-1550. Prerequisite: 01H:005 or 01H:006 or consent of instructor.
01H:144 Classical Architecture: Theory/Practice
Architectural design in the Italian Renaissance, Brunelleschi to Borromini. Prerequisite: 01H:005 or 01H:006 or consent of instructor.

01H:150 Seventeenth-Century Dutch and Flemish Painting
Painting in the age of Rubens, Rembrandt, Vermeer; rise of landscape, still life, genre. Prerequisite: 01H:006 or consent of instructor.

01H:155 The Romantic Revolution
Transformations in European art and culture 1750-1850, an age of artistic, political, cultural, intellectual crisis and revolutions; major artists, including David, Ingres, Gericault, Delacroix, Goya, Freidrich, Constable, Turner.

01H:157 Paris and the Art of Urban Life
City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as 009:130, 033:130.

01H:158 Realism, Impressionism, Post-Impressionism
Naturalism, Realism, the Impressionist landscape, painting of modern life, new trends in subjectivity and exoticism mid- to late-19th-century European art and culture; Courbet, Manet, Degas, Monet, Renoir, Seurat, Cezanne, Van Gogh, Gauguin, Ensor, Munch.

01H:159 Manet to Matisse
Development of modernism and the avant-garde in late 19th- and early 20th-century Paris; intersection of innovation and tradition, literature and art; role of theory and criticism in works of Manet, Degas, Seurat, Cezanne, Gauguin, Rodin, Matisse, and Picasso.

01H:160 Building a Nation: American Architecture to 1865
How ethnic groups shaped America's cultural landscapes and architecture from colonial period to Civil War.

01H:162 National Images: American Art to 1865
Painting, sculpture, and architecture from colonial times to Civil War. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:163 American Renaissance and the Gilded Age
Architecture, painting, sculpture 1865-1913. Prerequisite: 01H:006 or 01H:066 or 01H:162 or consent of instructor.

01H:164 Nazi and Stalinist Art: Aesthetics of Power
Manipulative power of art, architecture, urbanism, and film in 20th-century totalitarian regimes. Italy, Germany, and Stalinist Soviet Union as well as Madrid, Warsaw, Beijing, Pyongyang, Baghdad; the dark side of art and its transnational character, particularly in architecture and urban planning; nature of propaganda and statesponsored art, responses to modernism and industrialization, allure of militarism and empire, uses of historicism, role of public ritual and mass spectacle in totalitarianism; common currency of totalitarian art across national groups, cultures, ideologies; how aesthetics function as tools of modern autocracies, with lessons for ailing 21st-century democracies. Prerequisite: an introductory course in an appropriate area for art majors.

01H:165 American Western Art
Painting and sculpture of the western United States, primarily from Euro-American perspective. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:167 African American Art and Architecture
Visual and material culture of African Americans, including painting, sculpture, decorative arts, and film, examined from aesthetic and ideological perspectives.

01H:170 Modernism and Early Twentieth-Century American Art
American responses to European Modernism in painting, sculpture, architecture, and photography. Prerequisite: 01H:006 or 01H:066 or consent of instructor.

01H:171 Modern Art
European and American art 1900-1940. Prerequisite: 01H:006 or 01H:073 or consent of instructor.
01H:172 Late Modern Art
American and European art 1940-1970. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:173 Contemporary Art
European and American art 1970 to present. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:178 Pop Art
Survey of pop art in America, Britain, Europe; focus on developments in painting and sculpture 1950s to early 1960s; continuing influence of Pop Art. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:179 Minimalism
Survey of Minimalism; focus on developments in painting and sculpture during 1960s; continuing influence. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:180 Marketing, Promoting, Politicking Contemporary Public Art
How public art projects are conceived, created, and paid for; projects sponsored and funded by federal, state, and local governments and private businesses 1960 to present; projects' operational structures, how artists are selected; Vietnam Veterans Memorial, Serra's *Tilted Arc*, recent projects. Prerequisite: an introductory course in an appropriate area for art majors.

01H:181 The Art Museum: Theory and Practice
Same as 024:162.

01H:182 Art, Law, and Ethics
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 024:161, 033:175, 091:192.

01H:183 History of Prints
Printmaking as important art form, influential carrier of styles and iconography from area to area; focus on Europe; history of prints from prehistoric times to present.

01H:184 History of Photography
Survey of photography 1839 to present. Prerequisite: 01H:006 or 01H:073 or consent of instructor.

01H:185 Modern Architecture
Impact of new technology, artistic theory, and social practices on modern European and American architecture, 1890 to 1977. Prerequisites: 01H:006 and 01H:085, or consent of instructor.

01H:186 Contemporary Architecture
Quality of contemporary-built environments in America, Western Europe, Asia, and Middle East from 1970 to present; stylistic evolution of postmodern design, new urbanism, sustainable architecture; impact of literary and cultural theory on contemporary practitioners such as Daniel Libeskind, Steven Holl. Prerequisites: 01H:006, 01H:085, and 01H:185; or consent of instructor.

01H:187 Sustainable Architecture: Past, Present, and Future
Sustainable building practices of the past, traditional and indigenous cultures; current sustainable architectural practices, leading practitioners, institutional standards in the U.S. and Europe; competing demands of sustainability against the ideals of historic preservation; how architectural aesthetics can support sustainable technology. Prerequisite: junior, senior, or graduate standing.

01H:190 Honors Research in Art History
Research and preparation of thesis. Prerequisites: honors standing and consent of instructor.

01H:194 Independent Study in Art History
Advanced work in art history. Prerequisite: consent of instructor.

01H:199 Topics in Art History
Varied topics.
Art History, Primarily for Graduate Students

01H:200 History and Methods
Critical thinking and research; readings in historical development of the discipline, from Renaissance to present; methodological paradigms and trends.

3 s.h.

01H:210 Art History Colloquium
Current topics and research in art history. Repeatable. Prerequisite: art history graduate standing.

1 s.h.

01H:247 Crossing Borders Seminar

2-3 s.h.

01H:300 Directed Studies

arr.

01H:302 M.A. Written Thesis

arr.

01H:310 Seminar: Problems in African Art
Repeatable.

2-3 s.h.

01H:316 Seminar: Problems in Asian Art
Dialogue between arts and cultures of Asia and those of other major areas; varied research topics, such as Islamic arts in relation to those of Middle Ages and/or Renaissance in Europe; China and/or Japan in relation to Europe and/or the Americas, influences of Western arts and culture on Japan or China since World War II; students determine topics and research strategies in consultation with instructor; project. Repeatable. Prerequisite: art history experience or consent of instructor.

3 s.h.

01H:330 Crossing Borders Proseminar

1 s.h.

01H:340 Seminar: Problems in Medieval Art
Major issues, methodologies. Repeatable.

3 s.h.

01H:345 Seminar: Problems in Renaissance Art
Special problems, issues. Repeatable.

3 s.h.

01H:353 Seminar: Problems in Baroque Art
Repeatable.

3 s.h.

01H:359 Seminar: Problems in Nineteenth-Century Art
Repeatable.

3 s.h.

01H:362 Seminar: Modern/Contemporary Art
Major issues, methodologies. Repeatable. Prerequisite: consent of instructor.

3 s.h.

01H:366 Seminar: Problems in American Art
Repeatable.

3 s.h.

01H:385 Seminar: Problems in Architectural History
Key themes, architects, and literature that informs the history of the built environment in varied cultural contexts.

3 s.h.

01H:400 Ph.D. Readings
Repeatable.

arr.

01H:402 Ph.D. Thesis
Repeatable.

arr.
**Studio Art for Undergraduate and Graduate Students**

Courses numbered through 099 are primarily for undergraduates and are not repeatable for credit except where indicated. Some courses numbered 100-199 are repeatable. Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all studio courses for art majors.

**Fundamentals**

**01A:003 Basic Drawing**
- 3 s.h.
- Two-dimensional visual language, media; space, form; color. Prerequisite: art major.

**01A:004 Design Fundamentals**
- 4 s.h.
- Two- and three-dimensional concepts and their relations; working with basic drawing instruments; problems in visual arts; artists' philosophies and techniques. Prerequisite: art major or consent of instructor.

**01A:005 Writing About the Visual Arts**
- 3 s.h.
- Opportunity to develop understanding of and skill in using visual-arts writing conventions and linguistic competencies that are necessary for academic and professional success; formats such as exhibition reviews, art criticism, research writing, artist's statements; experience through exercises, formal essays, revision, workshops. Prerequisite: fulfillment of General Education rhetoric requirement. Same as 01H:007.

**01A:302 M.A. Written Thesis**
- 1 s.h.
- Prerequisite: consent of thesis supervisor.

**01A:304 M.F.A. Written Thesis**
- 1 s.h.
- Prerequisite: consent of thesis supervisor.

**Elements**

**01B:001 Elements of Art**
- 3 s.h.
- Drawing, composition; selected reading. Prerequisite: non-art major. GE: Fine Arts.

**01B:035 Elements of 3D Design**
- 3 s.h.
- Introduction to 3D design using drafting, modeling, and virtual reality software; basic concepts of drafting, planning, and color theory; basic Auto CAD, 3ds Max Studio, Vizard, InDesign software; students design an object to be printed 2D and 3D and a conceptual space to be printed 2D and experienced virtually; student journal and portfolio. Prerequisite: nonart major.

**01B:040 Elements of Jewelry and Metal Arts**
- 3 s.h.
- Experience creating personalized jewelry and metal arts; varied concepts and tastes in contemporary jewelry and metal arts; materials; basic metalworking techniques such as soldering, riveting, hydraulic die forming, stone setting anodization of titanium and aluminum. Prerequisite: non-art major.

**01B:050 Elements of Intermedia**
- 3 s.h.
- Introduction to intermedia for non-art majors; conceptual, interdisciplinary approach to new and emerging art forms, including time-based media, video, collaborative, and community-based projects; research in online networks, web projects. Prerequisite: non-art major.

**01B:051 Elements of Foil Imaging**
- 3 s.h.
- Printmaking experience using the Iowa Foil Printer; aesthetic and technical research, documentation in *Foil Imaging ... A New Art Form*; hands-on opportunity to explore new dimensions of visual expression. Prerequisite: non-art major.

**01B:075 Elements of Digital Photography**
- 3 s.h.
- Introduction for non-art majors to history, aesthetics, and practice of photography as a fine art; includes demonstrations, workshops, critiques, final portfolio; photography time outside of class; digital camera required; $100-$150 for materials. Prerequisite: non-art major.

**01B:080 Elements of Printmaking**
- 3 s.h.
01B:090 Elements of Sculpture  
3 s.h.  
Possibilities and definition of 3-D form, including time-based, performance, structural, installation, and kinetic sculpture. Prerequisite: non-art major. GE: Fine Arts.

Ceramics  
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all ceramics courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01C:060 Ceramics I  
3 s.h.  
Basic handbuilding methods of forming, firing, glazing clay. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors. GE: Fine Arts.

01C:061 Ceramics II  
3-4 s.h.  
Basic wheel-throwing techniques; clay, glaze formulation and preparation in kiln firing. Prerequisite: 01C:060 or equivalent.

01C:170 Ceramics III  
3-4 s.h.  
Advanced throwing techniques; larger scale, more professional goals; projects may be more sculptural or one of a kind. Offered fall semesters. Prerequisites: 01C:060, 01C:061, and consent of instructor.

01C:171 Ceramics IV  
3-4 s.h.  
Advanced individual projects. Offered spring semesters. Prerequisites: 01C:170 and consent of instructor.

01C:172 Ceramic Materials and Effects  
3-4 s.h.  
Empirical, practical methods of glaze and body formulation; effects of various types of kilns and firing atmospheres on glaze materials, clay bodies; digital imaging used for testing and documenting results. Offered fall semesters of even years. Prerequisites: 01C:170 or equivalent, and consent of instructor.

01C:173 Undergraduate Ceramics Workshop  
3-4 s.h.  
Advanced undergraduate studio; critiques of student work and electronic portfolio development, visiting artist participation; may include field trips. Prerequisites: 01C:171 and consent of instructor.

01C:174 Kiln Construction  
3-4 s.h.  
Kiln theory, design, construction methods; may include participation in kiln construction. Offered fall semesters of odd years. Prerequisites: 01C:170 or equivalent, and consent of instructor.

01C:190 Undergraduate Individual Instruction  
1-3 s.h.  
Individual instruction in ceramics for advanced students. Prerequisite: consent of instructor.

01C:270 Graduate Individual Instruction in Ceramics  
arr.  
Repeatable. Prerequisites: knowledge of clay and glaze computation, ability to fire kilns; and consent of instructor.

01C:275 Ceramics Workshop  
3-4 s.h.  
Advanced graduate studio; critique of student work; visiting artists, field trips. Repeatable. Prerequisites: 01C:171 or equivalent, and consent of instructor.

Design  
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all design courses for art majors; 01B:001 Elements of Art is the prerequisite for nonmajors.

01D:021 Problems in Design I: Form and Structure  
3 s.h.  
Materials, their formal and structural possibilities. Offered fall semesters. Prerequisites: 01A:003 and 01A:004 for majors; 01A:004 for nonmajors; or consent of instructor.

01D:022 Problems in Design II: Form and Function  
3 s.h.
How objects are designed and structured; modeling, graphic skills necessary for basic project development. Offered spring semesters. Prerequisite: 01D:021 or consent of instructor.

01D:023 Basic Drafting 3 s.h.
How to prepare drawings for interior design projects; skills and techniques for translating 3-D design concepts to paper; drafting tools; conventions of notation and line weights and drafting in different scales; basic lettering; orthographic projections (e.g., floor plans, ceiling plans, elevations). Prerequisites: 01A:003 and 01A:004, or consent of instructor.

01D:025 Introduction to Portfolio Design 3 s.h.
Preparation of presentation boards and portfolio production for print and job application; for students in 3-D design and related areas. Prerequisites: 01A:003 and 01A:004, or consent of instructor.

01D:028 Graphic Design I 3 s.h.
Basic principles, techniques, and applications of graphic design, typography, composition, visual perception; creative, problem-solving aspects of graphic design. Prerequisites: 01A:003, 01A:004, and two art history courses.

01D:064 Introduction to Computer-Aided Design for 3-D Design 3 s.h.
Basic principles of 2-D and 3-D computer-aided drafting; use of AutoCAD software to draw plans, elevations, and sections for objects and interior spaces. Prerequisites: 01A:003, 01A:004, and 01B:035 or consent of instructor.

01D:070 Introduction to Computer Modeling for 3-D Design 3 s.h.
Basic knowledge and practical technical skills using 3DS Max Studio software; experience creating and manipulating basic forms and working with texture, background, light, and camera viewpoints; basic animation. Prerequisites: 01A:003 and 01A:004, or consent of instructor.

01D:075 Introduction to Virtual Reality for 3-D Design 3 s.h.
Introduction to Vizard software; design of virtual 3-D space; translation of environments created in 3DS Max software into Vizard software. Prerequisite: 01D:070 or consent of instructor.

01D:082 Introductory Computer Graphic Design 3 s.h.
Macintosh computer as creative tool for graphic design; composition, manipulation, organization of type and image; projects, demonstrations, discussions. Prerequisites: 01A:004 and 01D:028.

01D:125 Typography 3 s.h.
Introduction to letterform and typographic fundamentals; designing with type—attention to composition, hierarchy, historical practice. Prerequisite: 01D:028.

01D:128 Computer Graphic Design 3 s.h.
Advanced composition, manipulation of image and type; organization and pre-press file management using Macintosh platform. Prerequisites: 01D:028 and 01D:082, or consent of instructor.

01D:133 Graphic Design II 3 s.h.
In-depth study and exploration of graphic design as creative and problem-solving tool of visual communication; translation of ideas and concepts into comprehensible visual language. Prerequisites: 01D:028, 01D:125, and consent of instructor.

01D:134 Graphic Design for the Web 3 s.h.
Designing for the World Wide Web; composition, manipulation, organization of type and images; projects, demonstrations, discussions. Prerequisites: 01D:082 and 01D:133.

01D:135 Graphic Design Workshop I 3 s.h.
Continuation of 01D:133; graphic design knowledge and skills applied to complex design problems such as visual identity, packaging, information design. Prerequisites: 01D:125 and 01D:133.

01D:137 Environmental Design I 3 s.h.
Human interaction with the interior and exterior environment. Offered fall semesters of odd years. Prerequisite: 01D:021 or equivalent or consent of instructor. Same as 049:158.

01D:141 Interior Design I 3 s.h.
Relationship of interior space to its architecture, environment, human element; color, materials, furnishings, lighting; projects. Offered spring semesters. Prerequisites: 01B:035 and 01D:021, or consent of instructor.

01D:142 Color for Interior Design
Use of color for interior spaces; principles of color theory reviewed and applied to 3-D environments; color as a compositional element and psychological tool. Prerequisite: 01D:021 or equivalent or consent of instructor.

01D:144 Interior Design II
Continuation of 01D:141. Offered fall semesters of even years. Prerequisites: 01D:064 and 01D:141.

01D:175 Advanced Typography
In-depth exploration of typographic principles and experimentation. Prerequisite: 01D:125.

01D:190 Undergraduate Individual Instruction
Individual instruction in design for advanced students. Prerequisite: consent of instructor.

01D:194 Problems in Graphic Design
Design topics; content varies. Prerequisite: consent of instructor.

01D:235 Graphic Design Workshop II
Complex problems in graphic design; planning, development, organization of integrated design programs. Repeatable. Prerequisites: 01D:133, 01D:135, and consent of instructor.

01D:238 Environmental Design II
Continuation of 01D:137; design of virtual environments. Repeatable. Prerequisite: consent of instructor.

01D:240 Individual Instruction in Design
Repeatable.

01D:249 Advanced Problems in Design
Special issues and topics in design. Repeatable. Prerequisite: consent of instructor.

Drawing
Courses 01A:003 Basic Drawing01A:004 Design Fundamentals and are prerequisites for all drawing courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

All B.F.A. students in drawing and painting must take 01F:106 Undergraduate Seminar in Drawing and Painting. Offered fall semesters.

01F:007 Life Drawing I
Observational drawing of form in its spatial contexts; drawing in varied media; figural as well as nonfigural content. Prerequisites: 01A:003 and 01A:004; and 01B:001 for nonmajors.

01F:105 Concepts in Drawing
Drawing from topics at the intermediate level; observation, theory, media, form, content; emphasizes personal direction. Prerequisite: 01F:007. Same as 049:157.

01F:106 Undergraduate Seminar in Drawing and Painting
Contemporary issues, practical and professional skills, interdisciplinary concerns, education and career goals. Offered fall semesters. Prerequisite: 01F:105.

01F:109 Advanced Concepts in Drawing
Drawing from topics at the advanced level. Repeatable. Prerequisite: 01F:105.

01F:190 Undergraduate Individual Instruction
Individual instruction in drawing for advanced students. Prerequisite: consent of instructor.

01F:199 Special Topics in Drawing and Painting
Advanced issues in drawing and painting. Prerequisite: 01F:105.
01F:201 Graduate Drawing
Compositional and conceptual drawing as related to the student's major interest; varied media. Repeatable. Prerequisites: 6 s.h. of 01F:105 or equivalent, and consent of instructor.

01F:205 Individual Instruction in Drawing
Repeatable.

Jewelry and Metal Arts
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all metalsmithing and jewelry courses for art majors; 01B:001 Elements of Art prerequisite for nonmajors.

01G:084 Introduction to Jewelry and Metal Arts
Basic metalworking techniques, including sheet metal fabrication, hammer forming, hydraulic die forming, soldering, riveting, repousse, etching, roll printing, anodizing, stone setting, patination; creation of jewelry, functional, and nonfunctional objects using metals, other materials. Prerequisites: 01A:003 and 01A:004 for majors, 01B:001 for nonmajors.

01G:185 Intermediate Jewelry and Metal Arts
Continuation of 01G:084; electroforming, electro-applique, casting, forging fold forming, inlay, stone setting, mold making; creation of conceptual and/or functional objects, jewelry, and prototype pieces for production art work using metals, other materials. Prerequisite: 01G:084.

01G:186 Advanced Jewelry and Metal Arts
Enameling, laser print transfer/resist, lathe usage, gold plating, kumboo; production of pieces using 3-D computer modeling, prototyping, other CNC industrial technologies, photo etching dropout processes; historical and current trends in crafts. Prerequisite: 01G:084.

01G:187 Mixed Media Workshop
Free exploration of all media and materials, including found objects; creation of conceptual and/or functional mixed media objects, jewelry, sculptures, installation pieces; pioneering use of new materials, development of new techniques, creation of diverse innovative art works. Prerequisite: 01G:084. Recommended: 01G:185 and 01G:186.

01G:188 Graduate Workshop
Independent studio work; personal aesthetics, conceptual and technical skills developed and refined; creation of work without boundaries of media; portfolios, exhibitions, professional goals. Prerequisites: 01G:185, 01G:186, and 01G:187; or equivalents.

01G:190 Undergraduate Individual Instruction
Individual instruction in metalsmithing and jewelry for advanced students. Prerequisite: consent of instructor.

01G:240 Individual Instruction in Metalsmithing and Jewelry

Intermedia
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all intermedia courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01J:090 Intermedia I
Interdisciplinary focus; emphasis on conceptual, installation, video, time-based media, performance art. Prerequisites: 01A:003 and 01A:004 for art majors.

01J:091 Intermedia II
Interdisciplinary investigation of materials and concepts in relation to time-based media, performance, video, installation; individual and collaborative projects. Prerequisite: 01J:090.

01J:100 Intermedia Topics
Areas of intermedia practice, including installation, video, Internet-based production, sound design, image and text, new media. Prerequisite: 01J:090 or consent of instructor.

**01J:104 Media Art Lab**
4 s.h.
Study and production in the media arts--digital video, sound, installation/performance, Internet, new media art; conceptual development through readings, screenings; hands-on workshops using a range of media production equipment and platforms; in-class, short-term projects. Prerequisite: 01J:090 or equivalent, or consent of instructor. Recommended: experience with media technologies.

**01J:105 Time-Based Media/Video I**
3-4 s.h.
Study and production in the media arts--digital video, sound, installation/performance, Internet, new media art; conceptual development through readings, screenings; hands-on workshops using a range of media production equipment and platforms; in-class, short-term projects. Prerequisite: 01J:090 or equivalent, and consent of instructor.

**01J:106 Time-Based Media/Video II**
3-4 s.h.
Continuation of 01J:105. Prerequisite: 01J:105 or consent of instructor.

**01J:108 Art and Ecology**
4 s.h.
Collaborative, creative research group; artistic responses to environmental sustainability and related social issues; critical approaches rooted in humanities, other disciplines. Prerequisite: 01J:090 for majors, or senior or graduate standing, or consent of instructor.

**01J:110 Intermedia Workshop**
3-4 s.h.
Visual practice/visual theory; projects, critiques, visiting artists and scholars. Prerequisite: consent of instructor.

**01J:115 What is Storytelling For?**
3 s.h.
Same as 033:115.

**01J:140 Artists in the Community--Intermedia**
3-4 s.h.
Student participation in internships at Iowa City and Johnson county nonprofit organizations; interdisciplinary seminar.

**01J:190 Undergraduate Individual Instruction**
1-3 s.h.
Individual instruction in intermedia for advanced students. Prerequisite: consent of instructor.

**01J:201 Individual Instruction in Intermedia and Video Art**
arr.
Repeatable.

**01J:208 Intermedia Graduate Special Topics**
3-4 s.h.
Areas of intermedia practice, including installation, video, Internet-based production, sound design, image and text, new media. Repeatable. Prerequisite: consent of instructor.

**Painting**
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all painting courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

**01K:009 Painting I**
3 s.h.
Emphasis on observational painting, theory and development of pictorial ideas and skills. Prerequisite: 01F:007.

**01K:010 Painting II**
3-4 s.h.
Materials, techniques, beginning of a personal painting language through observation and imagination. Prerequisites: 01K:009 and consent of instructor.

**01K:046 Painting III**
4 s.h.
Painting, with contemporary issues overlying study in materials and techniques; language and direction of personal painting. Prerequisite: 01K:010.

**01K:049 Painting IV**
4 s.h.
Individual projects as they aid the realization of a personal vision. Prerequisite: consent of instructor.

**01K:190 Undergraduate Individual Instruction**
1-3 s.h.
Individual instruction in painting for advanced students. Prerequisite: consent of instructor.

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<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>01K:199</td>
<td>Special Topics in Painting and Drawing</td>
<td>3-4 s.h.</td>
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<tr>
<td>01K:206</td>
<td>Graduate Painting: Topics</td>
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<tr>
<td>01K:207</td>
<td>Graduate Drawing and Painting Workshop</td>
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<tr>
<td>01K:208</td>
<td>Graduate Drawing and Painting Forum</td>
<td>1 s.h.</td>
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<tr>
<td>01K:215</td>
<td>Individual Instruction in Painting</td>
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Photography

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all photography courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

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<tbody>
<tr>
<td>01L:034</td>
<td>Beginning Photography</td>
<td>3 s.h.</td>
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<tr>
<td>01L:036</td>
<td>Beginning Digital Photography</td>
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<td>01L:040</td>
<td>Introduction to Digital Imaging</td>
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<td>01L:101</td>
<td>Intermediate Photography Darkroom</td>
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<td>01L:102</td>
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<td>01L:105</td>
<td>Advanced Photography</td>
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<td>01L:129</td>
<td>Materials and Techniques</td>
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<tr>
<td>01L:134</td>
<td>Silkscreen</td>
<td>3-4 s.h.</td>
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<tr>
<td>01L:140</td>
<td>Digital Imaging</td>
<td>3-4 s.h.</td>
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</tbody>
</table>

Varied image editing programs, with focus on Photoshop, and the web; advanced. Prerequisite: intermediate photography experience or consent of instructor.
01L:165 4x5 Camera and Lighting 3-4 s.h.
Use of a 4 x 5 camera to correct perspective, depth of field; large format printing, negative processes. Prerequisite: 01L:101 or consent of instructor.

01L:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in photography for advanced students. Prerequisite: consent of instructor.

01L:231 Individual Instruction in Photography arr.
Repeatable. Prerequisite: consent of instructor.

01L:236 Graduate Photography Workshop 4 s.h.
Projects; group critiques; readings. Prerequisite: consent of instructor.

Printmaking
Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all printmaking courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01M:011 Introduction to Printmaking 3 s.h.
Introduction to methods, materials, and concepts of printmaking. Prerequisites: art major, 01A:003, and 01A:004.

01M:021 Undergraduate Intaglio 3-4 s.h.
Concepts, techniques; Renaissance and contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors.

01M:024 Undergraduate Relief 3-4 s.h.
Relief printmaking techniques. Prerequisites: 01A:003 and 01A:004 for majors, 01B:001 for nonmajors.

01M:031 Undergraduate Lithography 3-4 s.h.
Fundamental techniques, characteristics of lithography; basic direct drawing, processing, printing of stone and plate images in black and white. Prerequisite: 01F:007 or equivalent.

01M:042 Undergraduate Monoprint 3-4 s.h.
Concepts and techniques in using traditional and alternative printmaking media to produce unique, matrix generated prints. Prerequisite: 01M:021 or equivalent.

01M:121 Intaglio 3-4 s.h.
Concepts, techniques; traditional through contemporary ideas, methods; emphasis on metal plate printing, including etching, drypoint, engraving, softground, aquatint. Prerequisite: graduate standing.

01M:122 Advanced Intaglio and Relief 3-4 s.h.
Concepts and techniques of intaglio/relief; etching, engraving, drypoint, softground, aquatint, woodcut, linocut, color printing; emphasis on advanced methods, personal vision. Prerequisites: 01M:021, and 01M:024 or 01M:031 or equivalent.

01M:124 Relief 3-4 s.h.
Concepts and techniques of relief printmaking, including woodcut, linocut, relief etching, black-and-white and color printing methods; traditional and contemporary approaches; for graduate students with no printmaking experience. Prerequisite: graduate standing.

01M:131 Lithography 3-4 s.h.
Technical, aesthetic characteristics; basic direct drawing, processing, printing of stone and plate images in black and white. Prerequisite: graduate standing.

01M:132 Advanced Lithography 3-4 s.h.
Technical, aesthetic aspects; emphasis on color printing, indirect image-forming and photo-mechanical processes. Prerequisites: 01M:021 or 01M:024, and 01M:031.
01M:141 Monotype  
3-4 s.h.

01M:142 Monoprint  
3-4 s.h.
Concepts, techniques in use of traditional and alternative printmaking media to produce unique, matrix-generated prints. Offered spring semesters. Prerequisites: 01M:021, and 01M:024 or 01M:031 or equivalent.

01M:151 Foil Imaging I  
3-4 s.h.
Participation in development of a new art form involving creation of original prints and other works of art using hot stamped foil and Iowa Foil Printer. Prerequisite: consent of instructor.

01M:152 Foil Imaging II  
3-4 s.h.
Advanced aesthetic and technical research for creation of original prints and other works of fine art using hot stamped foil and other printmaking techniques; individual instruction. Prerequisites: 01M:151 or equivalent, and consent of instructor.

01M:160 Special Workshop in Printmaking  
2-3 s.h.
Issues, themes, or studio practice. Prerequisite: consent of instructor.

01M:170 Foil Workshop in Printmaking  
2 s.h.
Hands-on experience creating foil prints; workshop format. One or two weeks. Offered summer session.

01M:190 Undergraduate Individual Instruction  
1-3 s.h.
Individual instruction in printmaking for advanced students. Prerequisite: consent of instructor.

01M:250 Individual Instruction in Printmaking  
arr.
Repeatable.

01M:260 Graduate Print Workshop  
3-4 s.h.
Contemporary issues in printmaking; emphasis on development of personal work and independent studio practice through group critiques, special research projects, work in all print media. Repeatable. Prerequisites: 01M:122 and 01M:132, or equivalents.

Sculpture

Courses 01A:003 Basic Drawing and 01A:004 Design Fundamentals are prerequisites for all sculpture courses for art majors; 01B:001 Elements of Art is prerequisite for nonmajors.

01N:015 Undergraduate Sculpture I  
3 s.h.
Basic sculptural concepts, processes, investigation of materials such as plaster, clay, wood; emphasis on developing formal language, acquiring basic skills; spatial, conceptual, technical issues. Prerequisites: 01A:003 and 01A:004 for majors; 01B:001 for nonmajors. GE: Fine Arts.

01N:016 Undergraduate Sculpture II  
3-4 s.h.
Continuation of 01N:015; form, materials, processes, woodcarving, welding, concrete carving and direct application; expanding concept development; contemporary sculptural formats, collaborative process. Prerequisite: 01N:015.

01N:019 Sculpture Workshop  
3-4 s.h.
Critiques with focus on concept and form development; new processes. Prerequisites: 01N:016 and consent of instructor.

01N:140 Topics in Sculpture  
3-4 s.h.
Projects, reading; specialized conceptual forms and issues in contemporary sculpture, such as public art, installation. Prerequisites: 01N:015, 01N:016, and consent of instructor.

01N:150 Figure Modeling  
3-4 s.h.
Exploration of the human form with live model; clay on a wire armature, portrait modeling, relief. Prerequisite: 01N:015.

01N:155 Advanced Figure Modeling  
3-4 s.h.
Exploration of human form in clay on wire armature, from live model; portrait modeling and relief human anatomy; human form in full scale on welded armature. Prerequisites: 01F:007 and 01N:150, or equivalents or consent of instructor.

01N:160 Mold Making 3-4 s.h.
All aspects of mold making—plaster, rubber, silicone; technical preparation for 01N:165. Prerequisites: 01N:015, 01N:016, and consent of instructor.

01N:165 Casting in Hot Metal 3-4 s.h.
Foundry work, wax working, mold making, and processes. Prerequisites: 01N:016 and 01N:160.

01N:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in sculpture for advanced students. Prerequisite: consent of instructor.

01N:260 Individual Instruction in Sculpture 3-4 s.h.
Repeatable.

01N:264 Graduate Sculpture Workshop 3-4 s.h.
Critique seminar with readings for graduate sculptors and nonsculpture graduate students. Repeatable. Prerequisite: consent of instructor.

Interdepartmental Courses

01P:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

01P:030 Art and Design Learning Community 1 s.h.
Varied studio art-related techniques taught in workshop setting. Saturdays and evenings. Prerequisite: first-year standing in Art and Design Learning Community.

01P:090 Issues in Contemporary Art 3 s.h.

01P:130 Cycling the American Discovery Trail: Iowa Route 3 s.h.
Bicycle touring on the American Discovery Trail, Iowa Route; gravel route (or paved, depending on weather), 60 miles per day for eight days, carrying camping and other gear, which students must supply; focus on poetics of adventure and landscape, and teamwork; assigned readings, digital portfolio, presentation of stories on UITV; good physical condition and bicycling experience required; expenses in addition to tuition. Prerequisite: consent of instructor.

01P:134 Scene Design I 3 s.h.
The development of theatre scenery; how to research, conceptualize, and express ideas in sketches, models, simple drafting. Same as 049:134.

01P:150 Comics, Graphic Novels: Introduction to Sequential Art 3 s.h.
Overview of contemporary American comic artists, history of comics and graphic novels in the United States; genres and structures in sequential art; students create works that combine design, images, texts, story. Prerequisite: satisfaction of rhetoric requirement.

01P:160 Introduction to Letterpress Printing 3 s.h.
Mechanics of letterpress printing, basic elements of typographic design as applied to letterpress edition printing; hand setting and printing from metal type on Vandercook proof presses; printing text and illustration from photopolymer plates; historical aspects of printing, early development of printing technologies, evolution of letterpress printing through 20th century. Same as 108:160.

01P:161 Handprinted Book: Design and Production 3 s.h.
Exploration of problems in hand-printing books--choice of manuscript, editing, design, typesetting, proofreading, printing and binding; histories of printing and of the book, emphasis on 20th-century book design and literature. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: consent of instructor. Same as 008:187, 108:161.

01P:162 Digital Book Design
3 s.h.
Students plan, design, and produce a book using Adobe Creative Suite; page layout software, typography, page layout and design, book formatting, handling of image files, preparation of materials for print and other contemporary book media; history of book design, book design in contemporary publishing; visit to University of Iowa Libraries Special Collections. Prerequisites: 01D:125 or 108:160 or consent of instructor. Same as 108:162.

01P:163 Digital to Letterpress Book Design
3 s.h.
Digital typesetting and book design; chapbook production using photopolymer plates and Vandercook presses; text and content, book typography, practical and aesthetic considerations. Prerequisite: consent of instructor. Same as 108:163.

01P:164 Digital Design for Artists' Books
3 s.h.
Introduction to concepts, techniques, and technologies used to design and produce artists' books with personal computers and graphic design software. Same as 108:164.

01P:165 Innovative Letterpress
3 s.h.
Creation of the visual book using letterpress printing; narrative, serialization, type as graphic, physical structure of the book; traditional letterpress printing, monoprinting, nontraditional letterpress techniques using technology ranging from metal to digital. Same as 108:165.

01P:170 Issues in Contemporary Art
3 s.h.
Current trends and developments in art and related culture; interdisciplinary approach. Prerequisites: art major and one introductory art course.

01P:180 Digital Portfolios in the Arts
1-3 s.h.
Students create a World Wide Web-based digital portfolio featuring their studio work and creative scholarship.

01P:185 Grant Writing in the Arts
3 s.h.
Same as 024:170.

01P:190 Honors in Studio Art
0-3 s.h.
Research, preparation, and exhibition of an honors project in studio art. Prerequisite: consent of instructor.

01P:199 Topics in Studio Arts
3 s.h.

01P:299 Graduate Independent Study
arr.
Individual instruction by a faculty member.

Papermaking

01X:110 Papermaking
3 s.h.
History, fundamental techniques of Western and Eastern hand papermaking; projects in traditional sheet forming, basic paper chemistry, paper coloring. Offered fall semesters. Prerequisite: consent of instructor. Same as 108:110.

01X:120 Papermaking History and Technique
3 s.h.
Traditional Eastern and Western sheet forming techniques, history, aesthetics; emphasis on fiber selection and preparation. Offered spring semesters. Prerequisite: consent of instructor. Same as 108:132.

01X:130 Paperworks
3 s.h.
Conceptual and methodological approaches to 2-D and 3-D paper works; students create a body of works that couple the unique properties of paper-pulp medium with personal visual ideas and clarity of intent; contemporary issues in paper pulp and the medium's relationship to larger art and craft contexts; for students with significant prior papermaking experience. Prerequisite: 01X:110 or 01X:210 or equivalent; or consent of instructor. Same as 108:130.
01X:210 Individual Instruction in Papermaking/Paperworks
Repeatable. Prerequisites: 01X:120 and consent of instructor.

Bookbinding

01Y:150 Bookbinding I: Materials and Techniques
Hands-on introduction to materials and techniques commonly used in bookbinding. Same as 108:150.

01Y:151 Bookbinding II
Build on skills acquired in 108:150; projects to complete six bindings based on historical and contemporary models; sewing styles, board attachments, endband types; nonadhesive and case-bound structures, varied materials and binding styles, their effects on structure, aesthetic considerations, further development of solid binding skills; historical development of particular binding practices. Prerequisite: 108:150 or consent of instructor. Same as 108:151.

01Y:152 Bookbinding III
Five bookbindings based on historical and contemporary models; differences in various binding practices, how these differences affect function, why the styles developed; experience choosing appropriate structures for particular uses; emphasis on fine tuning skills and techniques required for advanced binding practices; sewn endbands, rounding and backing, sewing on varied supports, board attachments, and covering methods. Prerequisites: (for 108:152) 108:150 and 108:151, or consent of instructor. Prerequisites: (for 01Y:152) 01Y:150 or 01Y:151 or 108:150 or 108:151, and consent of instructor. Same as 108:152.

01Y:153 Studies in Bookbinding
Topics related to hand bookbinding. Prerequisite: consent of instructor. Same as 108:153.

01Y:154 Artists' Books
Nontraditional binding structures; emphasis on innovative techniques and how parts of the book function. Prerequisite: 01Y:150 or 108:150 or consent of instructor. Same as 108:154.

01Y:156 Boxes and Enclosures
Hands-on techniques for a variety of book enclosures; appropriateness, aesthetic issues concerning box design; Japanese wraparound case, drop-spine box, hinged and lidded boxes, slipcase; technical skill development. Prerequisite: 108:150 or consent of instructor. Same as 108:156.

01Y:157 Moveable/Sculptural Books
Varied formats for moveable and/or sculptural books; history; readings, hands-on model making. Same as 108:157.

01Y:158 Pop-Up Book Structures
Hands-on exploration of varied aspects of paper engineering for bookmaking; historical and modern models studied and executed. Prerequisite: 108:150 or consent of instructor. Same as 108:158.

Calligraphy

01Z:142 History of Western Letterforms
History of Western letterforms, with focus on tools, materials, techniques; the major hands, their place in history, their influence on modern times; creation of letterforms using appropriate tools; hands-on approach with emphasis on understanding rather than mastery. Same as 108:142.

01Z:143 Calligraphy: Foundational Hands
Fundamental calligraphic skills using Roman majuscule, Humanistic minuscule, Italic; basic layout and color theory incorporated into letter practice. Same as 108:143.

01Z:144 Calligraphy: Italic and Script Hands
Hands-on instruction in italic and pressure pen scripts; historical relationships, effects on modern letterforms. Same as 108:144.

01Z:146 Studies in Letter Arts
Special topics and advanced projects in calligraphy and letter arts. Prerequisite: 108:140 or 108:141 or 108:142 or 108:143 or consent of instructor. Same as 108:146.

Art Education for Undergraduate and Graduate Students

01E:143 Composing Art Workshops 3-4 s.h.
Application of studio methods to teaching children in Saturday Children's Art Class Program. Prerequisite: 01E:196. Same as 07E:143.

01E:190 Undergraduate Individual Instruction 1-3 s.h.
Individual instruction in art education. Prerequisites: 01A:003, 01A:004, and consent of instructor.

01E:195 Methods and Materials: Art for the Classroom Teacher 2 s.h.
Projects, techniques, processes in art for elementary majors; combination lecture and studio; painting, drawing, printmaking, sculpture, and crafts with materials and tools commonly available in the elementary schools. Prerequisite: admission to TEP. Same as 07E:122.

01E:196 Art Learning 3-4 s.h.
Overview; child, adolescent art; relationships with art, education; survey of literature; community art teaching experiences.

01E:198 Art Education Studio 3-4 s.h.
Art training related to processes of elementary, secondary school art teaching; studio methods applied to teaching children, adolescents. Prerequisite: 01E:196. Corequisite: 07S:090 for Teacher Education Program.

01E:215 Visual Art Practice as Research: Portfolio 4 s.h.
Storytelling with interactive media; strategies for conveying story performance, case studies, and visual conceptualization; portfolio, case study, or story inquiry project. Repeatable.

01E:290 Individual Instruction in Art Education arr.

01E:367 Seminar: Current Issues in Art Education 3-4 s.h.
Analysis of literature in art education and related disciplines. Repeatable. Same as 07S:367.

01E:406 Research in the Arts and Humanities arr.
Individual research under supervision; applicable to thesis preparation, doctoral prospectus development. Repeatable. Same as 07E:406, 07S:406.
Asian and Slavic Languages and Literatures

The Department of Asian and Slavic Languages and Literatures offers instruction in languages of Asia and eastern Europe as well as in the literatures, civilizations, and cultures of the regions. In addition to offering undergraduate and graduate degrees, the department welcomes students from across the University to enroll in courses that complement their degree programs or that satisfy personal interests.

Undergraduate Program

The department offers a Bachelor of Arts in Asian languages and literature and in Russian, a minor in Asian languages, and a minor in Russian.

The major in Asian languages and literature is intended for students who wish to concentrate on one of the language and literature programs offered by the department. Students interested in Asian studies may add a second major by pursuing a Bachelor of Arts in international studies with an emphasis in Asian studies; see International Studies in the Catalog.

The major in Asian languages and literature offers students the opportunity to develop advanced skills in an Asian language while they study the people, literatures, and cultures of Asia. Many students find that they can combine an Asian languages and literature major conveniently with a major in international studies, history, political science, art history, religion, sociology, journalism, business, anthropology, or other disciplines.

Graduates have found careers in education, government, communications, business, and other fields in the United States and abroad. The program also provides excellent background for advanced study in a variety of fields in the humanities and social sciences and for professional schools, such as law and business.

The Russian major trains students in both written and spoken Russian and in Russian literature, culture, and civilization. The department encourages students to pursue a second major (e.g., global health, history, linguistics, political science) and to develop their interests in related or complementary fields. Students interested in focusing on a broader interdisciplinary understanding of the region may pursue a second major in International Studies.

Training in Russian is often an important asset to careers in the natural and physical sciences, engineering, medicine, business, journalism, library and information science, and the social and military sciences. It also may be appropriate preparation for study of law or international relations as well as Slavic languages and literatures, comparative literature, and other humanistic disciplines.

Some governmental agencies are interested in job candidates who have advanced training in Russian; these agencies give preference to applicants who combine strong language proficiency with a well-rounded background in area studies. Students who develop an exceptional facility with the Russian language may pursue careers in literary and technical translation and interpretation.

Bachelor of Arts in Asian Languages and Literature

The Bachelor of Arts in Asian languages and literature requires a minimum of 120 s.h., including 30-40 s.h. of work for the major. Students choose from four tracks: Chinese, Hindi, Japanese, and Sanskrit; required credit for the major depends on choice of track. Transfer work is accepted to satisfy some requirements of the major, but at least half of the semester hours of advanced work required for the major must be earned at The University of Iowa. Students must complete the College of Liberal Arts and Sciences General Education Program.

CHINESE TRACK COURSES

039:108 Classical Chinese: First Semester 3 s.h.
Third-Year Chinese: First Semester - Third-Year Chinese: Second Semester 6 s.h.
Third-Year Chinese: First Semester - Fourth-Year Chinese: Second Semester 6 s.h.
039:141 Chinese Literature: Poetry 3 s.h.

One of these:
039:142 Chinese Literature: Prose 3 s.h.
039:180 Modern Chinese Writers 3 s.h.

One of these advanced language courses (3 s.h.):
039:165 Fifth-Year Chinese: First Semester 3 s.h.
039:166 Fifth-Year Chinese: Second Semester 3 s.h.
039:171 Readings in Chinese Literature 3 s.h.
039:215 Individual Chinese for Advanced Students arr.

Students also must complete two of the following, to support the study of literature and culture.

01H:120 Chinese Painting I 3 s.h.
01H:124 Themes in Asian Art History 3 s.h.
16W:198 China Since 1927 3 s.h.
030:148 Government and Politics of China 3 s.h.
032:170 Topics in Asian Religions 3 s.h.
039:015 Introduction to Chinese Culture 3 s.h.
039:016 Asian Art and Culture 3 s.h.
039:032 Chinese Popular Culture 3 s.h.
039:034 The Languages of Asia in Cultural and Historical Perspective 3 s.h.
039:240 Seminar in Chinese Fiction 3 s.h.

Only courses that pertain to Chinese culture or to the methodology of literary or cultural studies can be counted toward this requirement. Content for the following courses may vary by semester or course section; see departmental advisor for approval.

008:129 Topics in Criticism and Theory 3 s.h.
008:161 Transnational and Postcolonial Writing by Women 3 s.h.
008:270 Introduction to Cultural Studies 3 s.h.
048:079 Undergraduate Translation Workshop 3 s.h.
048:155 Narratives Modes 3 s.h.
048:172 Narrative and the Cinema 3 s.h.

HINDI TRACK COURSES

039:126-039:127 Second-Year Hindi: First Semester - Second-Year Hindi: Second Semester 8 s.h.
039:184-039:185 Third-Year Hindi: First Semester - Third-Year Hindi: Second Semester (students may substitute 6 s.h. of 100-level courses in South Asian studies, with the approval of their major advisors) 6 s.h.
039:136 Indian Literature 3 s.h.
Additional advanced courses (100-level) in South Asian studies, including 1-3 s.h. of independent study 13 s.h.

A list of advanced courses is available from the department.

JAPANESE TRACK COURSES

Advanced courses in Japanese literature taught by faculty members in the department (e.g. 39J:141, 39J:142, 39J:143) 6 s.h.
Additional advanced courses taught by faculty members in the department 6 s.h.
Lists of advanced courses are available from the department.

**SANSKRIT TRACK COURSES**

039:186-039:187 Third-Year Sanskrit: First Semester - Third-Year Sanskrit: Second Semester (students may substitute 6 s.h. of advanced courses (100-level) in South Asian studies, with the approval of their major advisors) 6 s.h.
039:136 Indian Literature 3 s.h.
039:163 Indian Religious Texts 3 s.h.

Additional advanced courses (100-level) in South Asian studies, including 1-3 s.h. of independent study 12 s.h.

A list of advanced courses is available from the department.

Students of Sanskrit and Hindi are urged to fulfill the General Education Program requirement in historical perspectives (3 s.h.) by completing 016:007 Civilizations of Asia: South Asia.

**Bachelor of Arts in Russian**

The Bachelor of Arts in Russian requires a minimum of 120 s.h., including 31 s.h. of work for the major earned in advanced Russian courses. Students must complete the College of Liberal Arts and Sciences General Education Program.

The major in Russian requires the following courses.

One of these:

041:109 Beginning Composition and Conversation I 4 s.h.
041:110 Beginning Composition and Conversation II 4 s.h.

Both of these sequences:

041:111-041:112 Third-Year Russian I-II 8 s.h.
041:113-041:114 Fourth-Year Russian I-II 8 s.h.

Four of these (Russian/East European culture):

041:093 Slavic Folklore 3 s.h.
041:094 Religion and Culture of Slavs 3 s.h.
041:096 Islamic Women in Russia 3 s.h.
041:097 Istria 3 s.h.
041:098 Introduction to Russian Culture 3 s.h.
041:099 Russia Today 3 s.h.
041:100 Russian Literature in Film 3 s.h.
041:102 Russian Literature in Translation 1860-1917 3 s.h.
041:103 Russian Literature since 1917 3 s.h.
041:104 Health Care and Health Reforms in Russia 3 s.h.
041:148 Journey Through Time and Culture 3 s.h.
041:155 Tolstoy and Dostoevsky 3 s.h.
041:156 Invitation to Nabokov 3 s.h.
041:160 Women in Russian Society 3 s.h.
041:164 Topics in Russian, East European, and Eurasian Studies arr.
041:168 Twentieth-Century Czech Authors 3 s.h.

Students may substitute one of the following Slavic language two-course sequences for one of the four required Russian/East European culture courses (see list above). Availability of Croatian and Polish language courses varies.

041:141-041:142 First-Year Czech I-II 8 s.h.
041:143-041:144 Second-Year Czech I-II 8 s.h.
041:181-041:182 First-Year Croatian I-II 8 s.h.
Students majoring in Russian are urged to choose elective courses in economics, geography, history, political science, global health, and international studies. Nearly every avenue of professional training and employment requires a solid background in Russian area studies. For example, criteria for U.S. government employment include substantive knowledge in history, economics, political science, sociological disciplines, scientific specialties, demography, military-related skills, and in some cases cultural and religious background. In-depth knowledge of literature or linguistics without other substantive background may be of limited practical use in gaining employment.

**B.A. with Teacher Licensure**

**Teacher Licensure in Chinese and Japanese**

Chinese and Japanese majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major, or the equivalent, plus designated pedagogy and linguistics courses in the Department of Asian and Slavic Languages and Literatures. In addition, students must be admitted to the College of Education's foreign language Teacher Education Program. Several courses in the College of Education are required, as is one semester of student teaching, taken in the senior year. Contact the College of Education's Department of Teaching and Learning for more information.

Students who plan to use a Chinese or Japanese minor to teach at the elementary and/or secondary level must contact the College of Education for requirements.

**Teacher Licensure in Russian**

Russian majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in Russian and must be admitted to the College of Education's foreign language Teacher Education Program. Several courses in the College of Education are required, as is one semester of student teaching in the senior year. All students in the program have the option of earning a K-12 endorsement to teach Russian along with the bachelor's degree. For information about the foreign languages Teacher Education Program and graduate programs in foreign language education, contact the Department of Teaching and Learning (College of Education).

Students who plan to use a Russian minor to teach at the elementary and/or secondary level must contact the College of Education for requirements.

**Four-Year Graduation Plan**

**B.A. in Asian Languages and Literature**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

**Before the third semester begins:** for students in Chinese and Japanese tracks, language work begun (students in the Hindi and Sanskrit tracks may begin language work in their sophomore year) and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** at least first-year language competency and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** at least second-year language competency and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** at least third-year, first-semester language competency and one additional course in the major (two additional courses in the Japanese track)

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**B.A. in Russian**

**Before the third semester begins:** competence in first-year Russian and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** competence in second-year Russian and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** competence in third-year Russian, an additional course in the major, and at least three-quarters of the semester hours required for graduation
Before the eighth semester: competence in fourth-year Russian and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Honors in Asian Languages and Literature

Students who maintain a cumulative University of Iowa g.p.a. of at least 3.33 are encouraged to enroll in the University of Iowa Honors Program. With consent of the department chair and a faculty sponsor (an Asian specialist from any department), students register for 039:191 Honors Tutorial and 039:195 Senior Honors Thesis. To receive a B.A. with honors, students must complete an acceptable thesis based on original research.

Honors in Russian

Russian majors with junior or senior standing, a g.p.a. of at least 3.33 in Russian, and a cumulative University of Iowa g.p.a. of at least 3.33 may enroll in the honors program in Russian. An extensive reading program with discussions, regular reports, and a semester paper constitute each honors work unit of 3 s.h. Students may take up to 9 s.h. of honors in Russian. Contact the University of Iowa Honors Program for more information about honors study at Iowa.

Minor in Asian Languages

The minor in Asian languages requires a minimum of 15 s.h. (or 14 s.h. for the Hindi emphasis), including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may earn the minor with an emphasis in Chinese, Hindi, Japanese, or Sanskrit. Course work for each emphasis is as follows.


Students with a Hindi emphasis may complete the advanced course requirement with 11 s.h., and the minor with a total of 14 s.h. The courses 039:123 First-Year Hindi: First Semester and 039:124 First-Year Hindi: Second Semester do not count as advanced courses for the minor.

Students with a Japanese emphasis must choose one of the advanced courses from literature, culture, or linguistics courses. A list of courses approved for the minor is available from the department.


Minor in Russian

The minor in Russian requires a minimum of 15 s.h. in Russian, including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 3 s.h. taught in English toward the minor. The department recommends that students choose 100-level courses for the minor, such as the sequences 041:109 Beginning Composition and Conversation I and 041:110 Beginning Composition and Conversation II, 041:111 Third-Year Russian I and 041:112 Third-Year Russian II, and 041:113 Fourth-Year Russian I and 041:114 Fourth-Year Russian II.

Courses for Nonmajors

The department offers several opportunities for students who wish to study the languages of Asia, South Asia, and eastern Europe. Language study is available in Chinese, Croatian, Czech, Hindi, Japanese, Korean, Russian, Sanskrit, and Uzbek.

Students who have had experience with Japanese or Russian should take the Japanese or Russian Foreign Language Placement Test, offered during summer orientation programs and at other times during the year by Evaluation and Examination Service. The tests help determine the level at which a student should begin Japanese or Russian language study at The University of Iowa. Students with backgrounds in Chinese, Hindi, Korean, or Sanskrit may receive individual evaluations from the department.

The department also offers survey courses in Russian literature and culture, a monograph course on Tolstoy and
Dostoevsky, and courses on women in Russian society, Russia today, and Russian and Slavic civilization and folklore, all taught in English.

**Foreign Language and General Education**

The department offers course sequences that students may use to fulfill the foreign language requirement of the General Education Program. Sequences are available in Chinese, Hindi, Japanese, Korean, Russian, and Sanskrit.


High school students, part-time University of Iowa students, and full-time UI students who do not plan to satisfy the General Education foreign language requirement with Chinese may wish to take the sequence 039:003 Beginning Chinese I, 039:004 Beginning Chinese II, 039:010 Beginning Chinese III, and 039:011 Beginning Chinese IV (none are approved for General Education in foreign language), followed by 039:105 Second-Year Chinese: First Semester and 039:106 Second-Year Chinese: Second Semester. Additional course work is available, including advanced Chinese, classical Chinese, and business Chinese.


Students with no background in Russian should begin their study with 041:001 First-Year Russian I. The sequence 041:001 First-Year Russian I, 041:002 First-Year Russian II, 041:003 Second-Year Russian I, and 041:004 Second-Year Russian II can be used to fulfill the General Education foreign language requirement.


**Certificate in International Business**

Students pursuing a B.A. in Asian languages and literature or in Russian may be interested in earning the Certificate in International Business, which is offered jointly by the Henry B. Tippie College of Business and the College of Liberal Arts and Sciences. The certificate offers a wide range of electives, permitting undergraduate students to tailor the program to their individual interests and to complement their majors. The certificate has a foreign language requirement, which students of Chinese, Japanese, Hindi, or Russian are likely to satisfy while completing the requirements for their major. It also includes courses in international business, relations, and institutions as well as area studies courses. For more information, see International Business in the Catalog.

**Graduate Programs**

The Department of Asian and Slavic Languages and Literatures offers a Master of Arts in Asian civilizations and in Russian. The department is not accepting graduate students in Russian for 2009-10.

The program prepares students for doctoral study in a variety of disciplines. The program is also of interest to students
with nonacademic career plans for whom graduate-level work in an Asian language and culture would be useful. Students in professional programs are encouraged to consider working concurrently toward a degree in Asian civilizations. Application materials are available from the department, as is specific information on program tracks (Hindi language and literature; Sanskrit language and literature; South Asian studies; Chinese literature and culture; Chinese linguistics; teaching Chinese as a foreign language; interdisciplinary Chinese studies; teaching Japanese as a foreign language; Japanese studies; and interdisciplinary Japanese studies).

**Master of Arts in Asian Civilizations**

The Master of Arts in Asian Civilizations requires a minimum of 30 s.h. of graduate credit, including 24 s.h. earned in residence at The University of Iowa. All students must maintain a g.p.a. of 3.00 or higher. Detailed information on degree requirements is sent to all applicants.

By the end of the first semester in residence, students propose a study plan developed in consultation with their advisor and in accordance with guidelines for specializations within the program.

By the end of the final semester in residence, students are expected to demonstrate, either by departmental examination or the successful completion of courses at the appropriate level, advanced competence in Chinese, Japanese, Hindi, or Sanskrit, defined generally as corresponding to the fourth-year level of language course work in Chinese or Japanese and the third-year level in Hindi and Sanskrit.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. The Department of Asian and Slavic Languages and Literatures requires a g.p.a. of at least 3.00 for regular admission and a g.p.a. of at least 2.75 for conditional admission.

Applicants must submit a statement of purpose, a research paper written in English, three letters of recommendation, and GRE General Test scores. Applicants whose first language is not English must score at least 590 (paper-based), 243 (computer-based), or 97 (Internet-based) on the Test of English as a foreign language (TOEFL).

Both international and U.S. graduate applications requesting financial support for the following academic year are due February 1. All other applications are accepted until April 15 for fall admission and October 1 for spring admission.

**Study Abroad**

The department strongly urges its students to seek opportunities for summer language study and study abroad to accelerate the language acquisition process. The University’s memberships in the American Institute of Indian Studies and the China Cooperative Language and Study Programs consortium help facilitate students’ access to quality international programs in India and China. The government of the People’s Republic of China offers scholarships for two students to live and study in Mainland China each year.

The UI-Nanzan Exchange allows Iowa students to pay Iowa tuition, room, and board while attending the Center for Japanese Studies at Nanzan University in Nagoya, Japan. There also is a cooperative agreement with the Landour Language School in the Himalayan foothills of India. The South Asian Studies Program has launched a new study abroad program in Mysore and Bangalore, India, where students have the opportunity to study a variety of aspects of traditional and modern Indian civilization.

Iowa students participate in summer, semester, or academic year programs in Russian under the auspices of the American Council of Teachers of Russian (ACTR), the association that directs academic language training programs in the cities of Moscow, St. Petersburg, and Vladimir.

Many students participate in summer, semester-long, and year-long study abroad programs in India, China, and Japan offered through other U.S. universities. In many cases credit is transferable, and it is possible for a student to study abroad and still complete the Four-Year Graduation Plan. There are many resources available for funding research and study abroad. It also may be possible for students to apply University of Iowa financial aid to their study abroad programs.

Contact the Department of Asian and Slavic Languages and Literatures or the Office for Study Abroad for more information.

**Summer Study, Internships**

The department offers an intensive course of language study (second year) each summer in which students complete the equivalent of one academic year of study (equivalent of one course for each of two semesters, totaling 8 s.h.).
Scholarships are available for summer intensive Russian.

Students are encouraged to enrich their programs of study through internships designed to combine work experience in Asia or the United States with study or research projects. The University's Pomerantz Career Center keeps a list of internships.

**Activities**

**Student Associations**

Students have many opportunities to enrich their studies in Asian languages and literature while living in Iowa City. The University sponsors student associations for students from many Asian countries, including mainland China, Japan, Korea, India, Pakistan, and Taiwan. All University of Iowa students are welcome to join. Various international community groups sponsor cultural events and holiday celebrations throughout the year.

**International Crossroads Community**

The International Crossroads Community, located in Hillcrest Residence Hall, welcomes both American and international students who wish to broaden their knowledge of international issues and foreign languages and cultures. Its programs include weekly language dinners with students and faculty, public festivals and celebrations of cultural holidays, educational presentations on topics such as study abroad and international careers, and music and theater performances. The community’s Japanese House is a focal point for activities among resident and nonresident students and the Japanese Student Association.

**Facilities**

**Language Media Center**

The University's Language Media Center provides facilities for language learning, teaching, and research. Equipment in the center includes state-of-the-art computer, audio, and video facilities as well as standard and short-wave radios, tape and cassette recorders, record players, and soundproof recording rooms. An electronic classroom, a soundproof workroom, and a library of tape, disc, and cassette recordings also are available.

**University of Iowa Libraries**

Since 1960 the University of Iowa Libraries has routinely acquired most American titles in Asian studies and selected overseas scholarly publications in English and other Western languages. The Main Library's Asian collection includes approximately 80,000 volumes in Asian languages and about 140,000 Western-language volumes on Asian subjects. Since 1975, the University has been a member of the Library of Congress Foreign Currency Exchange Program for Indian books and periodicals. The library's nonprint media collection includes a growing number of Asian feature films. A Chinese-Japanese-Korean computer terminal gives students and faculty access to the growing Research Libraries Information Network database in Asian languages.

**Financial Support**

Undergraduate and graduate students have access to the following financial aid and scholarship resources. Contact the Department of Asian and Slavic Languages and Literatures for application information.

**Cheng/Liu Scholarship:** Undergraduate and graduate students currently majoring in Chinese in the Department of Asian and Slavic Languages and Literatures at The University of Iowa may apply for the Cheng/Liu Scholarship. The award can be used for summer Chinese language study.

**Fairall Scholarship:** Undergraduate or graduate majors who have attended and/or graduated from Iowa elementary or secondary schools may be nominated by the department to receive a Fairall Scholarship. Preference is given to Japanese studies students. Applications are available late spring, with scholarships to be awarded the following fall semester.

**Foreign language and area studies fellowships:** Only U.S. citizens are eligible. Graduate students combining work in Asian languages at an advanced level with interdisciplinary or professional programs may apply. The award is offered by International Programs for academic year and summer language study.

**Graduate assistantships:** The department offers teaching assistantships for graduate students in the program. All applicants to graduate study in the program receive information on applying for an assistantship. Assistantships are awarded each spring for the following academic year.

**Graduate international research:** Opportunities for funding research abroad include Stanley Fellowships for Graduate Student Research Abroad, CIREH Research Scholarships in International Health, Fulbright Grants, and Foreign
Language Area Scholarships.

**Summer language scholarships:** Currently enrolled undergraduate and graduate students may compete for a Stanley-University of Iowa Foundation Support Organization Summer Language Scholarship, to be used for intensive summer language study in Chinese, Hindi, Japanese, or Sanskrit. Eight to ten awards of $2,000-$2,500 are made each summer. Applications are due March 1.

**Support for undergraduate study abroad:** Opportunities for undergraduates to study abroad include the Presidential Scholarships for Study Abroad and the Stanley Scholarships for International Research and Study.

### Asian and Slavic Languages and Literatures Courses

#### Language for Undergraduate and Graduate Students

**Chinese**

- **039:001 Conversational Chinese I** 1 s.h.
  Introduction to modern Chinese, with focus on communication "survival" skills for discussing oneself, family, daily activities, interests, personal preferences, food, shopping, travel, lodging; situational activities and performance.

- **039:002 Conversational Chinese II** 1 s.h.
  Continuation of 039:001, with focus on speaking and listening.

- **039:003 Beginning Chinese I** 3 s.h.
  Beginning Chinese; offered through UI Confucius Institute; first of a four-course sequence.

- **039:004 Beginning Chinese II** 3 s.h.
  Continuation of 039:003; offered through UI Confucius Institute; second of a four-course sequence. Prerequisite: 039:003.

- **039:008 First-Year Chinese: First Semester** 5 s.h.
  Sound system of Mandarin Chinese, basic sentence patterns; aural understanding, speaking, reading, writing. Offered fall semesters. Prerequisite: undergraduate standing. GE: Foreign Language First Level Proficiency.

- **039:009 First-Year Chinese: Second Semester** 5 s.h.
  Continuation of 039:008. Offered spring semesters. Prerequisites: 039:008 and undergraduate standing. GE: Foreign Language Second Level Proficiency.

- **039:010 Beginning Chinese III** 3 s.h.
  Continuation of 039:004; offered through UI Confucius Institute; third of a four-course sequence. Prerequisite: 039:004.

- **039:011 Beginning Chinese IV** 3 s.h.
  Continuation of 039:010; offered through UI Confucius Institute; last of a four-course sequence. Prerequisite: 039:010.

- **039:105 Second-Year Chinese: First Semester** 5 s.h.
  Continuation of 039:009. Offered fall semesters. Prerequisites: 039:009 and undergraduate standing. GE: Foreign Language Second Level Proficiency.

- **039:106 Second-Year Chinese: Second Semester** 5 s.h.
  Continuation of 039:105. Offered spring semesters. Prerequisites: 039:105 and undergraduate standing. GE: Foreign Language Fourth Level Proficiency.

- **039:107 Accelerated Second-Year Chinese: First Semester** 3 s.h.
  Intermediate Chinese. Prerequisites: grades of C or higher in 039:008 and 039:009, and one summer of Chinese study in China. GE: Foreign Language First Level Proficiency.

- **039:108 Classical Chinese: First Semester** 3 s.h.
  Late Zhou period; readings from *Zhanguoce, Mengzi, Zhuangzi*; focus on grammatical analysis, exact translation. Offered fall semesters. Prerequisite: 039:106.

- **039:109 Classical Chinese: Second Semester** 3 s.h.
Continuation of 039:108. Offered spring semesters. Prerequisite: 039:108.

039:114 Accelerated Second-Year Chinese: Second Semester 3 s.h.
Intermediate Chinese. Prerequisite: grade of C or higher in 039:107. GE: Foreign Language Fourth Level Proficiency.

039:115 Third-Year Chinese: First Semester 3 s.h.
Reading of advanced modern Chinese texts; speaking, writing. Offered fall semesters. Prerequisite: 039:106.

039:116 Third-Year Chinese: Second Semester 3 s.h.
Continuation of 039:115. Offered spring semesters. Prerequisite: 039:115.

039:117 Business Chinese I 3 s.h.
Skill development in communicating with Chinese counterparts on a number of domains in business translations; first of a two-course sequence. Prerequisite: 039:106.

039:118 Business Chinese II 3 s.h.
Skill development in communicating with Chinese counterparts on a number of domains in business translations; second of a two-course sequence. Prerequisite: 039:117.

039:128 Fourth-Year Chinese: First Semester 3 s.h.
Proficiency through oral and written discussions of modern texts. Offered fall semesters. Prerequisite: 039:116 or equivalent.

039:129 Fourth-Year Chinese: Second Semester 3 s.h.
Offered spring semesters. Prerequisite: 039:128.

039:165 Fifth-Year Chinese: First Semester 3 s.h.
Improvement of language skills in modern Chinese: listening, speaking, reading, writing; skill development in reading authentic texts related to topics of student interest. Prerequisite: 039:129.

039:166 Fifth-Year Chinese: Second Semester 3 s.h.
Continuation of 039:165. Prerequisite: 039:165.

039:171 Readings in Chinese Literature 3 s.h.
Readings for advanced modern Chinese learners to elevate reading and writing abilities; essays, fiction, poetry by contemporary Chinese writers. Taught in Chinese.

039:213 Advanced Classical Chinese 3 s.h.
Readings from Zuozhuan, Guoyu, other texts of early classical period. Prerequisite: 039:109.

039:220 Literary Chinese I 3 s.h.
Readings from literary and historical texts of Han and Wei-Jin periods. Prerequisite: 039:109 or consent of instructor.

Croatian

041:181 First-Year Croatian I arr.
Basic language skills—listening, reading, speaking, and writing Croatian; fundamentals of grammar; emphasis on student participation; first of a two-semester sequence.

041:182 First-Year Croatian II arr.
Continuation of 041:181. Prerequisite: 041:181.

041:183 Second-Year Croatian I 4 s.h.
Continuation of 041:182; proficiency in vocabulary and grammatical foundations of understanding, speaking, reading, and writing Croatian (Bosnian, Serbian). Prerequisite: 041:182 or equivalent.

041:184 Second-Year Croatian II 4 s.h.
Continuation of 041:183; basic grammatical forms; practice listening, speaking, and writing Croatian (Bosnian, Serbian). Prerequisite: 041:183 or equivalent.
### Czech

**041:141 First-Year Czech I**  
Basic language skills--listening, reading, speaking, and writing Czech; fundamentals of grammar; emphasis on student participation; first of a four-semester sequence.  

**041:142 First-Year Czech II**  
Continuation of 041:141; second of a four-semester sequence. Prerequisite: 041:141.  

**041:143 Second-Year Czech I**  
Proficiency building in vocabulary and grammatical foundations of elementary Czech; use and recognition of oral, aural, written, and reading language skills; third of a four-semester sequence. Prerequisite: 041:142 or equivalent.  

**041:144 Second-Year Czech II**  
Continuation of 041:143; last of a four-semester sequence. Prerequisite: 041:143.  

**041:145 Third-Year Czech I**  
Advance knowledge of Czech grammar, as well as reading, comprehension, conversation, and writing skills; varied techniques and activities for proficiency in Czech; conversation in small groups, present oral reports, written compositions, group projects; read and discuss articles from the press and contemporary Czech short stories; videotapes and DVDs of contemporary Czech cultural scene. Prerequisite: 041:144 or equivalent.  

**041:146 Third-Year Czech II**  

### Hindi

**039:123 First-Year Hindi: First Semester**  
Reading, writing, speaking. Offered fall semesters of odd years. GE: Foreign Language First Level Proficiency.  

**039:124 First-Year Hindi: Second Semester**  
Continuation of 039:123. Offered spring semesters of even years. Prerequisites: 039:123 and undergraduate standing. GE: Foreign Language Second Level Proficiency.  

**039:126 Second-Year Hindi: First Semester**  
Conversation, reading of folktales and modern short stories. Offered fall semesters of even years. Prerequisites: 039:124 and undergraduate standing. GE: Foreign Language Second Level Proficiency.  

**039:127 Second-Year Hindi: Second Semester**  
Continuation of 039:126. Offered spring semesters of odd years. Prerequisites: 039:126 and undergraduate standing. GE: Foreign Language Fourth Level Proficiency.  

**039:184 Third-Year Hindi: First Semester**  
Advanced level Hindi texts; speaking, writing. Offered fall semesters. Prerequisite: 039:127.  

**039:185 Third-Year Hindi: Second Semester**  
Continuation of 039:184. Offered spring semesters. Prerequisite: 039:184.  

### Japanese

**39J:010 First-Year Japanese: First Semester**  
Modern Japanese. Offered fall semesters. Prerequisite: undergraduate standing. GE: Foreign Language First Level Proficiency.  

**39J:011 Elementary Japanese: Review**  

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Review of material presented in 39J:010. Prerequisites: Japanese language study, and first-year or new transfer standing. GE: Foreign Language First Level Proficiency.

39J:012 First-Year Japanese: Second Semester 5 s.h.

39J:101 Second-Year Japanese: First Semester 4-5 s.h.

39J:102 Second-Year Japanese: Second Semester 4-5 s.h.

39J:105 Third-Year Japanese: Conversation I 3 s.h.

39J:106 Third-Year Japanese: Conversation II 3 s.h.

39J:107 Third-Year Japanese: Reading and Writing I 3 s.h.

39J:108 Third-Year Japanese: Reading and Writing II 3 s.h.

39J:119 Classical Japanese: First Semester 3 s.h.
Grammar, readings in classical Japanese. Offered fall semesters. Prerequisites: 39J:106 and consent of instructor.

39J:121 Fourth-Year Japanese: First Semester 3 s.h.
Modern Japanese; emphasis on communication skills. Offered fall semesters. Prerequisites: 39J:106 and 39J:108.

39J:122 Fourth-Year Japanese: Second Semester 3 s.h.
Continuation of 39J:121. Offered spring semesters. Prerequisite: 39J:121.

39J:131 Fifth-Year Japanese: First Semester 3 s.h.
Improvement of Japanese for academic and professional purposes. Offered fall semesters. Prerequisite: 39J:121 or consent of instructor.

Continuation of 39J:131. Offered spring semesters.

Korean

039:040 First-Year Korean: First Semester 4 s.h.
Modern Korean; speaking, listening, reading, writing. Offered fall semesters.

039:041 First-Year Korean: Second Semester 4 s.h.
Continuation of 039:040. Offered spring semesters. Prerequisite: 039:040.

039:042 Second-Year Korean: First Semester 4 s.h.
Continuation of 039:041; conversation and readings in intermediate Korean language; Korean culture. Prerequisite: 039:041.
039:043 Second-Year Korean: Second Semester 4 s.h.
Continuation of 039:042. Prerequisite: 039:042.

039:150 Third Year Korean: First Semester 3 s.h.
Continuation of 039:043; advanced intermediate Korean--conversation and grammar skills beyond basic intermediate level; vocabulary expansion with increasingly complex, abstract concepts; how to advance one's opinion and discuss thoughts, ideas. Prerequisite: 039:043.

039:151 Third-Year Korean: Second Semester 3 s.h.
Continuation of 039:150; conversation and grammar skills beyond basic intermediate level; writing skills for formal occasions; advanced discussion skills--how to advance one's opinion and share thoughts and ideas; traditional and modern Korean culture. Prerequisite: 039:150.

Russian

041:001 First-Year Russian I 4 s.h.
Basic language skills of listening, speaking, reading, and writing Russian; fundamentals of Russian grammar. GE: Foreign Language First Level Proficiency.

041:002 First-Year Russian II 4 s.h.
Continuation of 041:001. Prerequisite: 041:001. GE: Foreign Language Second Level Proficiency.

041:003 Second-Year Russian I 4 s.h.
Transition to upper-level study through oral practice, grammar exercises, tapes, videos, readings from the Russian press. Prerequisite: 041:002 or equivalent. GE: Foreign Language Second Level Proficiency.

041:004 Second-Year Russian II 4 s.h.
Continuation of 041:003. Prerequisite: 041:003. GE: Foreign Language Fourth Level Proficiency.

041:005 Conversational Russian I 3 s.h.
Basic elements of Russian for travel and business; for adult learners.

041:006 Conversational Russian II 3 s.h.
Continuation of 041:005; basic elements of Russian for travel or business; for adult learners.

041:109 Beginning Composition and Conversation I 4 s.h.
Russian oral and aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, newspaper texts. Taught in Russian. Prerequisite: 041:004.

041:110 Beginning Composition and Conversation II 4 s.h.
Russian oral and aural skills developed through idiomatic usage, stylistics, phonetics, intonation, grammar review; supplemented by short stories, conversation handbooks, current periodicals. Taught in Russian. Prerequisite: 041:004.

041:111 Third-Year Russian I 4 s.h.
Advanced Russian grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 041:004 or equivalent.

041:112 Third-Year Russian II 4 s.h.
Advanced Russian grammar, reading, conversation, and written skills through oral reports, compositions, conversation. Prerequisite: 041:111 or equivalent.

041:113 Fourth-Year Russian I 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Prerequisite: 041:112 or three years of college-level Russian or equivalent.

041:114 Fourth-Year Russian II 4 s.h.
Perfecting spoken Russian and aural comprehension of native speech. Taught in Russian. Prerequisite: 041:113 or three years of college-level Russian or equivalent.
041:119 Russian for Heritage Learners
Linguistic problems (grammar and vocabulary), communicative problems (understanding of written and oral advanced Russian speech), cultural problems (similarities and differences between cultures); for Russian heritage speakers.

041:120 Russian for Heritage Learners II
Continuation of 041:119.

Sanskrit

039:110 First-Year Sanskrit: First Semester
Grammar, basic vocabulary; elementary readings. Offered fall semesters of even years. Prerequisite: undergraduate standing. GE: Foreign Language First Level Proficiency. Same as 20E:110.

039:111 First-Year Sanskrit: Second Semester
Readings in epic and story literature. Offered spring semesters of odd years. Prerequisites: 039:110 and undergraduate standing. GE: Foreign Language Second Level Proficiency. Same as 20E:111.

039:112 Second-Year Sanskrit: First Semester
Readings in epic and puranic texts. Offered fall semesters of odd years. Prerequisites: 039:111 or consent of instructor, and undergraduate standing. GE: Foreign Language Second Level Proficiency. Same as 20E:121.

039:113 Second-Year Sanskrit: Second Semester
The Bhagavadgita and related religious/philosophical texts. Offered spring semesters of even years. Prerequisites: 039:112 or consent of instructor, and undergraduate standing. GE: Foreign Language Fourth Level Proficiency. Same as 20E:122.

039:186 Third-Year Sanskrit: First Semester
Readings in philosophical and literary Sanskrit. Offered fall semesters. Prerequisite: 039:113.

039:187 Third-Year Sanskrit: Second Semester
Continuation of 039:186. Offered spring semesters. Prerequisite: 039:186.

Uzbek

041:171 First-Year Uzbek I
Reading, listening, speaking, and writing Uzbek.

041:172 First-Year Uzbek II
Continuation of 041:171. Prerequisite: 041:171 or consent of instructor.

041:173 Second-Year Uzbek I
Continuation of 041:172. Prerequisite: 041:172 or consent of instructor.

041:174 Second-Year Uzbek II
Continuation of 041:173. Prerequisite: 041:173 or consent of instructor.

For Undergraduates

Asian Culture and Civilization

039:006 Introduction to Buddhism
Basic tenets, religious paradigms, historical phases important in the development of Buddhism; from the Buddha's life to evolution of Mahāyāna Buddhism; readings from India, Tibet, China, Japan, Korea, Southeast Asia. GE: Foreign Civilization & Culture, Humanities. Same as 032:006.

039:007 Chinese Religions
3 s.h.
Survey of Chinese religions; Chinese traditional religious beliefs and practices among the elite and the general population; recent developments in mainland China, Taiwan, and the West; religious ideas of Confucianism, Daoism, aspects of Buddhism, ancestor worship, cults of deities, practices such as spirit possession, faith healing, ghost marriages. Same as 032:010.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>039:015</td>
<td>Introduction to Chinese Culture</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Key aspects of traditional and modern Chinese culture as insights into the Chinese experience and worldview; development of the Chinese language and writing system, calligraphy and brush painting, cultural geography, urban life, martial arts, mainstream popular culture, music, cuisine.</td>
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<tr>
<td>039:016</td>
<td>Asian Art and Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Art from India, China, and Japan in many media and forms, in their cultural and historical contexts; cultural distinctions of these Asian civilizations as seen through the visual arts; chronology used to highlight historical processes and provide perspectives on continuity and change. GE: Fine Arts, Foreign Civilization &amp; Culture, Historical Perspectives. Same as 01H:016.</td>
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<tr>
<td>039:018</td>
<td>Asian Humanities: India</td>
<td>3 s.h.</td>
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<td></td>
<td>Introduction to four thousand years of South Asian civilization, through popular stories. GE: Foreign Civilization &amp; Culture, Humanities. Same as 032:008.</td>
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<tr>
<td>039:019</td>
<td>Asian Humanities: China</td>
<td>3 s.h.</td>
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<td></td>
<td>Literary and philosophical texts of China in English translation. GE: Foreign Civilization &amp; Culture, Humanities. Same as 032:009.</td>
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<td>039:020</td>
<td>Asian Humanities: Japan</td>
<td>3 s.h.</td>
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<td>Introduction to premodern, modern, and contemporary Japanese images, myths, and literature in English translation. GE: Foreign Civilization &amp; Culture, Humanities.</td>
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<tr>
<td>039:028</td>
<td>Introduction to the Art of China</td>
<td>3 s.h.</td>
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<td></td>
<td>Visual arts of China and their history; emphasis on understanding in context of Chinese civilization, history. Same as 01H:031.</td>
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<tr>
<td>039:029</td>
<td>First-Year Seminar</td>
<td>1-2 s.h.</td>
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<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.</td>
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<tr>
<td>039:032</td>
<td>Chinese Popular Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Introduction to popular culture from the People's Republic of China, Taiwan, Hong Kong, and the Chinese diaspora; shifting relationships among cultural production, media and technology, and political thought; influences of Japan, Korea, and the West; materials drawn from film, television shows, music, new media, popular literature, comics, magazines, advertising, fashion, art, and material culture; no previous knowledge of Chinese is required.</td>
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<tr>
<td>039:034</td>
<td>The Languages of Asia in Cultural and Historical Perspective</td>
<td>3 s.h.</td>
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<td>Chinese, Japanese, Korean, Sanskrit and Hindi; cultural and ethnic factors which have affected and are affected by each language; nontechnical introduction to the structure of the language, discussion of the script in which the language is written, and the history of the language, including a brief outline of the political and cultural history of each pertinent linguistic area and the ways linguistic history has been affected by these factors.</td>
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<tr>
<td>039:036</td>
<td>Understanding Korean Culture Wave</td>
<td>3 s.h.</td>
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<td>Introduction to the Korean culture wave and characteristics of contemporary Korean popular culture; lectures with discussions of readings, various audio-visual references (i.e., films, television dramas, music videos, cartoon, Internet contents, etc.).</td>
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<td>039:055</td>
<td>Civilizations of Asia: China</td>
<td>3 s.h.</td>
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<td>GE: Foreign Civilization &amp; Culture, Historical Perspectives. Same as 016:005.</td>
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<td>039:056</td>
<td>Civilizations of Asia: Japan</td>
<td>3-4 s.h.</td>
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<td>GE: Foreign Civilization &amp; Culture, Historical Perspectives. Same as 016:006.</td>
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<tr>
<td>039:057</td>
<td>Civilizations of Asia: South Asia</td>
<td>3-4 s.h.</td>
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</tbody>
</table>

Asian and Slavic Languages and Literatures
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>039:064</td>
<td>Living Religions of the East</td>
<td>3 s.h.</td>
<td>Religious beliefs, practices in India, China, Japan. GE: Foreign Civilization &amp; Culture, Historical Perspectives. Same as 032:004.</td>
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<tr>
<td>039:075</td>
<td>Asian Religious Classics</td>
<td>3 s.h.</td>
<td>Works of South and East Asia; may include Bhagavad Gita, Life of Milarepa, Mencius, Great Learning, Chuang-tzu, Lotus Sutra, Platform Sutra, selected Korean and Japanese works. Same as 032:075.</td>
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<tr>
<td>039:191</td>
<td>Honors Tutorial</td>
<td>arr.</td>
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<tr>
<td>039:195</td>
<td>Senior Honors Thesis</td>
<td>arr.</td>
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<tr>
<td>39J:017</td>
<td>Religion in Japanese Culture</td>
<td>3 s.h.</td>
<td>Introduction to Japanese religious and aesthetic traditions from early times through the early modern period; prehistoric artifacts, literature, poetry, drama, architecture, landscaping, tea practices, the visual arts. Same as 032:017.</td>
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</tr>
<tr>
<td>39J:033</td>
<td>Introduction to the Art of Japan</td>
<td>3 s.h.</td>
<td>Chronological survey of Japan's visual arts in their historical and cultural contexts from Neolithic age to present; extensive use of slides, films, other visual materials. Same as 01H:033.</td>
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<tr>
<td>041:029</td>
<td>First-Year Seminar</td>
<td>1-2 s.h.</td>
<td>Cultural, literary, architectural, and historical beauty of Prague, the capital of the Czech Republic. Prerequisite: first- or second-semester standing.</td>
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<tr>
<td>041:082</td>
<td>Youth Subcultures After Socialism</td>
<td>3 s.h.</td>
<td>Examination of youth subculture (i.e., distinct style and identity, beliefs, value system, fashion and favorite music) on the territory of post-communist Europe and its relations with the mainstream culture; how young people of Russia and the Czech Republic express their individuality after years of dullness and monotony.</td>
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<tr>
<td>041:086</td>
<td>Russian Media Today</td>
<td>3 s.h.</td>
<td>Contemporary conditions of the Russian mass media; tensions of the effective work of mass media under the pressure of state control and tendencies in the progress of independent media outlets; developments in Russian media since 1991, including the printed press, radio, television and new media (i.e., Internet and the like); the impact of the Putin presidency on the media and their role in securing his election victories in 2000 and 2004.</td>
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<tr>
<td>041:093</td>
<td>Slavic Folklore</td>
<td>3 s.h.</td>
<td>Introduction to culture, history, and art of eastern European peoples; pagan, dualistic, and animistic beliefs and their coexistence with Christian faith in eastern Europe. GE: Foreign Civilization &amp; Culture, Humanities.</td>
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<tr>
<td>041:094</td>
<td>Religion and Culture of Slavs</td>
<td>3 s.h.</td>
<td>Early and medieval Slavic history, with focus on Russian and Czech art, literature, and religion from 10th through 17th century. GE: Foreign Civilization &amp; Culture, Historical Perspectives.</td>
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<tr>
<td>041:095</td>
<td>Istria in Istria, Past and Present</td>
<td>3 s.h.</td>
<td>The Istrian laboratory as a locale for students of European history and development to reflect on the Europeanization of regional and border territories.</td>
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<td>041:096</td>
<td>Islamic Women in Russia</td>
<td>3 s.h.</td>
<td>Lives of Islamic women in Dagestan, Russia, throughout late Soviet period and during post-1991 Islamic revolution; dramatic transitions and reversals of women's roles.</td>
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<td>041:097</td>
<td>Istria</td>
<td>3 s.h.</td>
<td>Istria; focus on its historically mixed ethnic, linguistic, cultural, and political status.</td>
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</tbody>
</table>
041:098 Introduction to Russian Culture
Development of cultural history in Russia from middle ages to present; painting, music architecture, literature viewed against their political, historical, and social settings. Taught in English. GE: Foreign Civilization & Culture.

3 s.h.

041:099 Russia Today
Contemporary Russia, with focus on prevailing social, political, economic, ethnic, environmental conditions; attention to historical evolution of problems, current factors; what these factors might portend for the future. Taught in English. GE: Foreign Civilization & Culture.

3 s.h.

041:199 Honors
Prerequisite: consent of program coordinator.

arr.

For Undergraduate and Graduate Students

Asian Culture and Civilization

039:119 Popular Culture in South Asia
Popular cultural forms (films, calendar art, music, comics, advertising) and their role in formation and expression of collective identities based on gender, ethnicity, caste, religion, and so forth in South Asia. Same as 113:120.

3 s.h.

039:120 Chinese Painting I
Early Chinese painting from fourth century B.C.E. through 14th century C.E.; figural style, religious art, emergence of landscape, other nonreligious subjects, interconnectedness of painting and calligraphy as fine arts. Prerequisite: 01H:016 or 01H:031 or consent of instructor. Same as 01H:120.

3 s.h.

039:122 Language/Politics of Culture in South Asia
Key moments in the sociolinguistic history of premodern, colonial, and postcolonial linguistic communities in South Asia; roles of language in mediation of cultural and political processes. Same as 113:129.

3 s.h.

039:131 Themes in Asian Art History
Prerequisite: 01H:016 or 039:016 or equivalent or consent of instructor. Same as 01H:124.

3 s.h.

039:136 Indian Literature
Readings from medieval and modern periods in English translation. Same as 032:177.

3 s.h.

039:139 Chinese Historical Phonology
Phonology of Mandarin, other major Chinese dialect groups; reconstruction of the sound system of Middle and Old Chinese. Same as 103:139.

3 s.h.

039:140 The Literature of Daoism
Texts of philosophical, religious Daoism; Daoism in traditional Chinese political theory, literature, the arts, alchemy and medicine, sexual custom, combat. Taught in English. Same as 032:186.

3 s.h.

039:141 Chinese Literature: Poetry
Readings in classical and modern Chinese poetry in English translation. Same as 048:141.

3 s.h.

039:142 Chinese Literature: Prose
Readings in Chinese prose, primarily fiction, from third century B.C. to 1900 A.D., in English translation.

3 s.h.

039:144 Introduction to Chinese Linguistics
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as 103:144, 164:181.

3 s.h.

039:145 Topics in Asian Cinema
Issues or topics in East or South Asian cinemas. English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:127, 048:106.

3 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>039:156</td>
<td>The Karma of Words</td>
<td>3 s.h.</td>
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<td></td>
<td>Key issues in the relationship between Buddhism and the literary arts. Same as 032:156.</td>
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<tr>
<td>039:158</td>
<td>East-West Literary Relations</td>
<td>3 s.h.</td>
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<tr>
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<td>Same as 048:158.</td>
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<tr>
<td>039:159</td>
<td>Chinese Art and Culture</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Archaeological discoveries, sculpture, painting, architecture, calligraphy, other arts of Greater China area in historical and cultural contexts of past 5,000 years. Prerequisite: 01H:006 or 01H:031 or consent of instructor. Same as 01H:119.</td>
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<tr>
<td>039:161</td>
<td>Insurgency and Globalization of Discontent</td>
<td>3 s.h.</td>
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<td>Political theories of revolutionary African American and Japanese intellectuals, artists, and activists; how the theories have influenced social justice movements. Same as 129:161.</td>
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<tr>
<td>039:162</td>
<td>Turning East</td>
<td>3 s.h.</td>
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<td></td>
<td>The global nature of pilgrimage, primarily religious travel in or to Asia; journeys to single sacred sites, travel circuits to multiple destinations, internal or metaphorical pilgrimages. Same as 032:163.</td>
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<tr>
<td>039:163</td>
<td>Indian Religious Texts</td>
<td>3 s.h.</td>
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<td>Same as 032:171.</td>
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<tr>
<td>039:168</td>
<td>Topics in Asian Religions</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Same as 032:170.</td>
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<tr>
<td>039:170</td>
<td>Zen Buddhism</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Prerequisite: 032:004 or 032:006 or 032:010 or equivalent or consent of instructor. Same as 032:188.</td>
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<tr>
<td>039:172</td>
<td>Comparative Ritual</td>
<td>3 s.h.</td>
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<tr>
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<td>Practice and theory; rituals from religions, including Hinduism, Buddhism, Christianity, Indian religions; theories of interpretation. Same as 032:172.</td>
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<tr>
<td>039:173</td>
<td>Transnational Chinese Cinemas</td>
<td>3 s.h.</td>
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<td></td>
<td>Films from Mainland China, Hong Kong, Taiwan, and Chinese diasporic communities, silent era to present; relationship of film to nation-state, cultural interflows, media technologies, ideologies. English subtitles. Same as 048:174.</td>
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<tr>
<td>039:175</td>
<td>Topics in Asian History</td>
<td>3 s.h.</td>
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<td>Same as 16W:178.</td>
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<tr>
<td>039:177</td>
<td>Second Language Classroom Learning</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 07E:183, 07S:183, 164:171.</td>
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<tr>
<td>039:178</td>
<td>Government and Politics of the Far East</td>
<td>3 s.h.</td>
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<td></td>
<td>Functions, institutions of government in countries of Far East; focus on social, economic, historical environments. GE: Foreign Civilization &amp; Culture. Same as 030:143.</td>
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<tr>
<td>039:180</td>
<td>Modern Chinese Writers</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Readings in modern and contemporary Chinese fiction; in English translation. Same as 048:183.</td>
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<tr>
<td>039:188</td>
<td>East Meets West: The Western Reception of Eastern Religion</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction of religious ideas and forms from India, China, and Japan into Europe and America to late 20th century, from Greeks to New Age. Same as 032:178.</td>
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<tr>
<td>039:192</td>
<td>East Meets West: A Cross-Cultural Course</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Perceptions in the modern period based on analyses of films, literary and philosophical texts from East and West. Same as 048:192.</td>
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</tr>
<tr>
<td>039:196</td>
<td>China Since 1927</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Communist revolution from 1920s to founding of People's Republic of China in 1949; Mao Zedong's radical policies, Cultural Revolution; Deng Xiaoping's economic reforms; China today. GE: Foreign Civilization & Culture. Same as 16W:198.

039:198 Topics in Asian Studies
Topics vary.

039:199 Asian Studies

Japanese Culture and Civilization

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>39J:103</td>
<td>Language in Japanese Society</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Aspects of the Japanese language that reflect culture, social structures of</td>
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<tr>
<td></td>
<td>Japan; communication styles and strategies, cross-cultural communication,</td>
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<td></td>
<td>language in media, metaphors.</td>
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<tr>
<td>39J:109</td>
<td>Japanese Religion and Thought</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Same as 032:116.</td>
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<tr>
<td>39J:123</td>
<td>Japanese Painting</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Japanese painting in its historical, cultural contexts; focus on</td>
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<td></td>
<td>developments of successive eras--religious art; narrative, other</td>
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<td></td>
<td>literary connections; Zen; decorative traditions; popular arts; Japan</td>
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<td></td>
<td>and the modern world. Prerequisite: 01H:006 or 01H:033 or consent of</td>
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<tr>
<td></td>
<td>instructor. Same as 01H:123.</td>
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<tr>
<td>39J:125</td>
<td>Japanese Society and Culture</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Cultural anthropology of Japan, including historical tradition, religious</td>
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<td></td>
<td>ethos, social organization, human ecology, educational and political</td>
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<tr>
<td></td>
<td>institutions; emphasis on how these aspects relate to and influence one</td>
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<tr>
<td></td>
<td>another. GE: Foreign Civilization &amp; Culture. Same as 113:125.</td>
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<tr>
<td>39J:129</td>
<td>Japan: Culture and Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39J:130</td>
<td>Workshop in Japanese Literary Translation</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Workshop in translation from Japanese to English, with emphasis on literary</td>
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<tr>
<td></td>
<td>translation; issues in theory and practice of translation; special features</td>
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<tr>
<td></td>
<td>of Japanese as a source language for translation. Prerequisite: 39J:012 or</td>
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<td></td>
<td>equivalent.</td>
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<tr>
<td>39J:135</td>
<td>Postmodern Aesthetics and Japanese Culture</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Japanese postmodern trends (from Zen Buddhism to the habits of contemporary</td>
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<tr>
<td></td>
<td>otaku consumers); examination of aesthetics including works of literature,</td>
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<td></td>
<td>film, visual art, and electronic media.</td>
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<tr>
<td>39J:141</td>
<td>Traditional Japanese Literature in Translation</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>From seventh century to early modern times. Same as 048:143.</td>
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<tr>
<td>39J:142</td>
<td>Modern Japanese Fiction in Translation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Nineteenth century to present. Same as 048:142.</td>
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<tr>
<td>39J:143</td>
<td>Topics in Japanese Literature in Translation</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Topics vary.</td>
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<tr>
<td>39J:144</td>
<td>Major Authors in Modern Japanese Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Modern Japanese literary works in English translation.</td>
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<tr>
<td>39J:145</td>
<td>The Tale of Genji</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Close reading in English of Murasaki Shikibu's Tale of Genji; tale's</td>
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<td></td>
<td>literary and social contexts, and later reception. Same as 048:144.</td>
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<tr>
<td>39J:146</td>
<td>Warriors Dreams</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Images of the warrior in traditional Japanese literature, from poetry of the</td>
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<td></td>
<td>eighth century to romances of the 19th century; readings in English. Same</td>
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<tr>
<td></td>
<td>as 048:147.</td>
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<tr>
<td>39J:155</td>
<td>Contemporary Japanese Culture</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Cultural texts and practices in contemporary Japan: literature, film, television, manga.

39J:172 Japan--Age of the Samurai 3 s.h.
Society, culture, and politics of feudal Japan; social class, gender, norms, and political and economic developments explored through cinema and literature. Same as 16W:172.

39J:173 Modern Japan 3 s.h.
Political, social, and cultural developments of Japanese feudalism; feature films, fiction. Same as 16W:173.

39J:175 Japan--U.S. Relations 3 s.h.
Political, social, economic, and cultural developments in Japan mid-19th to late-20th century. Same as 16W:175.

Slavic Culture and Civilization

041:100 Russian Literature in Film 3 s.h.
Transposition between the media of literature and film.

041:102 Russian Literature in Translation 1860-1917 3 s.h.
Survey of major works, figures, and trends of 19th- and 20th-century Russian literature; age of the Russian novel; development of short fiction, drama, poetry of the Silver Age. Same as 048:107.

041:103 Russian Literature since 1917 3 s.h.
Major writers, themes, genres, movements associated with post-1917 Russian literature, especially the literary ferment of the 1920s; regimentation of literary expression from the early 1930s to Stalin's death; major trends in post-Stalin literature. Taught in English.

041:104 Health Care and Health Reforms in Russia 3 s.h.
Societal changes and their continuing effect on the Russian health care system since 1991; guest lectures from public health, nursing, medicine, cultural anthropology. Same as 152:170.

041:108 Special Readings arr.
Russian-language materials determined by student and instructor. Prerequisite: 16 s.h. of Russian language instruction.

041:126 Cult Films of the Last Soviet Generation 3 s.h.
Same as 048:126.

041:134 Forbidden Masterpieces: Russian and Czech Authors Who Changed History 3 s.h.
Examination of 20th-century literature written by authors fighting for the freedom of their nations, often suppressed, banned, imprisoned, or even stripped of their citizenship by the totalitarian communist governments; film screenings; works and films that made serious political statements, often at great risk to the artists involved, that influenced political changes. Taught in English.

041:148 Journey Through Time and Culture 3 s.h.
From Czech Republic through Slovakia, Poland, Hungary; major cultural and social changes in Central Europe since the 1950s. Taught in English.

041:155 Tolstoy and Dostoevsky 3-4 s.h.
Tolstoy's War and Peace, Anna Karenina; Dostoevsky's Crime and Punishment, The Brothers Karamazov, and short stories. Taught in English. Same as 008:155.

041:156 Invitation to Nabokov 3 s.h.
Nabokov's works and his writings on Russian literature. Same as 008:156, 048:156.

041:160 Women in Russian Society 3 s.h.
Historical developments that have shaped women's roles in contemporary Russian society; readings in cultural history, political science, autobiographical and fictional literature, contemporary film. Taught in English.

041:164 Topics in Russian, East European, and Eurasian Studies arr.
Same as 048:164.

**041:165 West and East: Women in the Slavic World**  
Roles of women in two Slavic countries--Islamic Republic of Dagestan in Russia, and the Czech Republic--using approaches from the social sciences and humanities; Christian/Catholic traditions in the western Slavic country (i.e., Czechoslovakia/Czech Republic) and Islamic influences in eastern parts of Russia; analysis of women's egalitarian roles in socialist societies of 1980s, the impact of the major political, economic, and social transitions on women's lives in 1990s.

**041:168 Twentieth-Century Czech Authors**  
Twentieth-century prose literature of Czechoslovakia; philosophical works of Capek, Hrabal, Kundera, Klima, Havel. Taught in English. Same as 048:154.

**041:180 Literature and Translation**  
Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as 048:180, 160:180.

**041:189 Russian Thinkers**  
Same as 026:184, 048:189.

**041:190 Readings in Russian Literature**  
Readings of poetry and prose by Russian authors. Prerequisite: third-year Russian.

**041:195 Russian Translation Workshop**  
Current training for professional work in translation and interpretation; concurrent activities, such as localization (adaptation of products or services to cultural, legal, linguistic, and technical requirements of specific locales), proofreading, editing, comparative analysis of English and Russian, rewriting, and so forth; consecutive, sight, simultaneous modes of interpretation; written proficiency in translation; contrastive grammar. Prerequisite: third-year standing in Russian language.

**041:196 Russian Translation Workshop II**  
Single presentation of source language material. Prerequisite: 041:195.

**Primarily for Graduate Students**

**Asian Culture, Linguistics, Pedagogy, Individual Study**

**039:200 Second Language Acquisition Research and Theory I**  
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 009:237, 035:201, 164:201, 39J:201.

**039:201 Second Language Acquisition Research and Theory II**  
Continuation of 164:201. Prerequisite: 164:201 or consent of instructor. Same as 035:202, 164:202.

**039:202 Teaching Chinese as a Foreign Language I: Theories/Research**  
Research, theory on acquisition of Chinese as a non-native language. Same as 164:281.

**039:203 Teaching Chinese as a Foreign Language II**  
Multiple levels of major Chinese textbooks, curricular organizational schemes, language programs, communicative language instruction; development of supplementary materials for a University of Iowa Chinese course. Same as 164:282.

**039:204 Teaching Chinese as a Foreign Language III**  
Development, application of technological teaching/learning materials; emphasis on designing computer-based materials that increase learner interaction in contextualized cultural environments.

**039:205 Analysis of L1 and L2 Data**  
Issues in qualitative and quantitative analysis of first- and second-language data; data collection, analytical frameworks and approaches. Prerequisite: 164:201 or consent of instructor. Same as 164:205.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>039:207</td>
<td>Sociolinguistics</td>
<td>3 s.h.</td>
<td>Topics such as discourse and conversation analyses, linguistic pragmatics, linguistic variations, issues of language and gender. Prerequisite: 103:100 or equivalent. Same as 164:207.</td>
</tr>
<tr>
<td>039:208</td>
<td>Teaching Chinese as a Foreign Language IV</td>
<td>3 s.h.</td>
<td>Overview of goals, concepts, principles, research, and issues in assessment and testing of Chinese as a foreign language. Same as 164:274.</td>
</tr>
<tr>
<td>039:209</td>
<td>Teaching Chinese as a Foreign Language V</td>
<td>3 s.h.</td>
<td>For M.A. students planning to write a thesis or project, or graduate students seeking knowledge in designing qualitative or quantitative studies; seminar on research design. Prerequisites: 07P:143, and 039:202 or equivalent. Same as 164:275.</td>
</tr>
<tr>
<td>039:210</td>
<td>Teaching Chinese as a Foreign Language VI: Pedagogical/Research Project</td>
<td>3 s.h.</td>
<td>Participation in Chinese as a Foreign Language material development projects under instructor's guidance.</td>
</tr>
<tr>
<td>039:214</td>
<td>Individual Korean for Advanced Students</td>
<td>arr.</td>
<td>Korea's modern/traditional culture, history, and current social issues; reading, translating authentic articles. Prerequisites: 039:151 or equivalent, and consent of instructor.</td>
</tr>
<tr>
<td>039:215</td>
<td>Individual Chinese for Advanced Students</td>
<td>arr.</td>
<td>Research, translation projects. Repeatable. Prerequisites: 039:129 or equivalent, and consent of instructor.</td>
</tr>
<tr>
<td>039:216</td>
<td>Individual Sanskrit for Advanced Students</td>
<td>arr.</td>
<td>Research, translation projects. Repeatable. Prerequisites: fourth-year proficiency and consent of instructor.</td>
</tr>
<tr>
<td>039:223</td>
<td>Topics in Second Language Acquisition: Listening</td>
<td>3 s.h.</td>
<td>Theory, pedagogy, research, and assessment in second language listening. Same as 164:223.</td>
</tr>
<tr>
<td>039:234</td>
<td>Principles of Teaching and Learning Foreign Languages</td>
<td>3 s.h.</td>
<td>Prerequisite: consent of instructor. Same as 009:234, 013:221, 041:234.</td>
</tr>
<tr>
<td>039:235</td>
<td>Seminar: South Asian Religion</td>
<td>3 s.h.</td>
<td>Topics in South Asian religions. Same as 032:235.</td>
</tr>
<tr>
<td>039:237</td>
<td>Seminar: East Asian Religion</td>
<td>3 s.h.</td>
<td>Emphasis on China and/or Japan. Same as 032:237.</td>
</tr>
<tr>
<td>039:240</td>
<td>Seminar in Chinese Fiction</td>
<td>3 s.h.</td>
<td>Novels, novelettes; 16th to 18th centuries (Ming and Qing periods). Prerequisite: ability to read original texts. Same as 048:233.</td>
</tr>
<tr>
<td>039:241</td>
<td>Seminar in Chinese Literature</td>
<td>arr.</td>
<td>Prerequisites: two years of modern Chinese and one year of classical Chinese, or equivalents. Same as 048:441.</td>
</tr>
<tr>
<td>039:250</td>
<td>South Asian Research Seminar</td>
<td>arr.</td>
<td>Faculty and student research. Repeatable.</td>
</tr>
<tr>
<td>039:291</td>
<td>M.A. Thesis</td>
<td>arr.</td>
<td>Offered fall semesters.</td>
</tr>
</tbody>
</table>
039:292 M.A. Thesis
Offered spring semesters.

039:304 Special Topics in Asian Cinema
Key issues, movements, periods, or figures in East or South Asian cinema. Repeatable. Same as 048:304.

Japanese Culture, Linguistics, Pedagogy, Individual Study

39J:200 Japanese Linguistics
Japanese language as linguistic system; basic linguistic terminology; sound systems, grammar, meanings, usages. Prerequisite: 39J:122 or consent of instructor.

39J:201 Second Language Acquisition Research and Theory I
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 009:237, 035:201, 039:200, 164:201.

39J:202 Japanese as a Foreign Language: Practical Applications
Instructional methodology, curriculum, and material design; hands-on experience. Prerequisite: 39J:122 or consent of instructor. Same as 164:276.

39J:203 Advanced Japanese Pedagogy
Instructional methods and management issues relevant to teaching Japanese language at advanced levels. Prerequisite: 39J:202. Same as 164:222.

39J:204 Practicum in Teaching Japanese as a Foreign Language
Teaching apprenticeship guided and supervised by a faculty member skilled in University curriculum and instruction.

39J:215 Individual Japanese for Advanced Students
Repeatable.

39J:239 Special Topics in Japanese Linguistics
Topics in applied linguistics and language pedagogy related to Japanese language. Same as 164:228.

39J:245 Seminar in Japanese Literature
Repeatable. Prerequisites: three years of Japanese and consent of instructor.

39J:251 Readings in Modern Japanese
Readings in modern Japanese. Repeatable. Prerequisite: consent of instructor.

39J:257 Readings: Japanese History
Same as 016:294.

Slavic Linguistics, Pedagogy, Individual Study

041:234 Principles of Teaching and Learning Foreign Languages
Prerequisite: consent of instructor. Same as 009:234, 013:221, 039:234.

041:276 Seminar: Russian Linguistics
Topics may include Russian morphosyntax, colloquial Russian, Russian pragmatics, Slavic gender linguistics.

041:279 Independent Research
Directed study. Prerequisite: consent of instructor.
The Bachelor of Liberal Studies (B.L.S.) is designed for students who wish to complete a bachelor's degree by distance education. The B.L.S. is a general undergraduate degree without a traditional academic major. Students work with their academic advisors to structure programs that meet their individual objectives.

B.L.S. students may plan programs designed to help them advance in their chosen careers, begin new careers, or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate course work in their B.L.S. programs.

Students may earn credit toward the degree through several types of courses, including Saturday & Evening Classes, web-based Guided Independent Study courses, semester-based web courses, extension courses at sites throughout Iowa, and regular session courses. Courses from any of the three Board of Regents, State of Iowa universities may be applied toward the degree, as may appropriate courses from other accredited institutions.

B.L.S. students may not earn minors.

For application information, see "Admission" below.

The B.L.S. is awarded by the College of Liberal Arts and Sciences and is administered by the Division of Continuing Education.

Bachelor of Liberal Studies

The Bachelor of Liberal Studies requires a minimum of 120 s.h., and is intended to be completed entirely by distance education. Students must earn at least 30 s.h. of credit toward the degree in University of Iowa courses after admission to the B.L.S. program. They must earn at least 60 s.h. of the minimum 120 s.h. at four-year colleges, including 45 s.h. in course work defined as upper-level. For the B.L.S., University of Iowa courses are considered upper-level if they are numbered 100 and above. Some courses numbered below 100 may be considered upper-level for the B.L.S.; for a list of these courses, contact Distance Education.

B.L.S. students are required to complete the College of Liberal Arts and Sciences General Education Program. Students complete at least 12 s.h. of credit in three of the following five distribution areas (total of at least 36 s.h.). In each distribution area, 6 of the required 12 s.h. must be earned in upper-level courses.

- Humanities (e.g., literature, history, philosophy, religion)
- Communication and arts (e.g., journalism, speech, drama, art, music, writing)
- Natural sciences and mathematics (e.g., geology, biology, statistics, computer science)
- Social sciences (e.g., geography, psychology, economics, political science, anthropology)
- Professional fields (e.g., business, education, nursing, social work, library science)

Credit applied toward completion of the General Education Program does not count toward the B.L.S. distribution area requirements, but it does count toward the required 45 s.h. of upper-level course work, if applicable.

Students must maintain a cumulative g.p.a. of 2.00 or higher in all course work applied toward the degree, all course work completed after admission to the program, and all upper-level course work.

All College of Liberal Arts and Sciences policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth apply to B.L.S. students. See the CLAS Student Academic Handbook.

Admission

Individuals who wish to earn a B.L.S. must apply formally for admission to the program. Prospective students should contact the Distance Education office before applying.

The B.L.S. is designed for students who need to earn a bachelor's degree by distance education. Individuals who have access to the full range of the University's on-campus daytime classes should seek admission to the College of Liberal Arts and Sciences in order to earn a degree with a major.

B.L.S. application requirements vary depending on educational background.
New applicants to The University of Iowa must have 60 s.h. of approved transfer credit and a cumulative g.p.a. of at least 2.50. They also must have satisfied the following high school course requirements: four years of English/language arts, two years of a single foreign language, three years of science, three years of social studies, two years of algebra, and one year of geometry.

Former University of Iowa students applying for reentry must have a total of 60 s.h. of University of Iowa and approved transfer credit and a g.p.a. of at least 2.00 on all University of Iowa course work or all college course work completed.

Applicants who hold an Associate of Arts (A.A.) degree from an Iowa community college or from Waldorf College must have a g.p.a. of at least 2.00 and are considered to have satisfied all General Education Program requirements except foreign language.

Applicants who hold an A.A. from Black Hawk College (Illinois) must have a g.p.a. of at least 2.25 and are considered to have satisfied all General Education Program requirements except foreign language.

Applicants who hold an A.A. from another institution must have 60 s.h. of approved transfer credit and a cumulative g.p.a. of at least 2.50. They also must have satisfied the following high school course requirements: four years of English/language arts, two years of a single foreign language, three years of science, three years of social studies, two years of algebra, and one year of geometry. Transfer credit is evaluated course by course.

Applicants who have a total of 24-60 s.h. of University of Iowa and approved transfer credit and a cumulative g.p.a. of at least 2.50 are admitted to the University on liberal-studies-interest status. When they complete 60 s.h. and have a g.p.a. of at least 2.00 on all college course work completed, they become eligible for admission to the B.L.S. program.

Contact Distance Education for more information about the Bachelor of Liberal Studies.
Biochemistry

Head: Charles M. Brenner


Professors emeriti: Arthur Arnone, Thomas W. Conway, Rex Montgomery, Arthur A. Spector, Earle Stellwagen, Charles A. Swenson

Adjunct professors: Theresa Gioannini, Nancy C. Stellwagen, Joseph Walder

Associate professors: John Dagle, Adrian Elcock, Ramaswamy Subramanian, M. Todd Washington

Assistant professors: Kris DeMali, Ernesto Fuentes, Shahram Khademi, Peter Nagy

Lecturer: Elisabeth Swain

Undergraduate degrees: B.A., B.S. in Biochemistry

Graduate degrees: M.S., Ph.D. in Biochemistry

Web site: http://www.biochem.uiowa.edu/

Biochemistry is the study of the basic chemical processes that occur in all living systems. It is one of the most active sciences, and it provides a foundation for other biosciences.

Biochemists generally work in laboratories and/or classrooms. Those with a bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which licensure is required.

Biochemists with advanced degrees—usually a doctorate—pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, government laboratories, biotechnology companies, and in food, drug, cosmetics, chemical, petroleum, and allied industries.

The Department of Biochemistry offers degree programs for undergraduates and for graduate students and administers the academic curriculum at both levels. The College of Liberal Arts and Sciences grants undergraduate degrees in biochemistry and oversees undergraduate academic policy relating to the student record. The Graduate College grants graduate degrees in biochemistry.

Undergraduate Programs

The Department of Biochemistry offers a Bachelor of Science and a Bachelor of Arts in biochemistry.

Students choose advanced science electives to supplement biochemical studies or to satisfy requirements of a double major or a minor in another discipline. In order to count science electives numbered below 100 toward a degree in biochemistry, students must have their advisor's approval.

Transfer credit for biochemistry courses requires the approval of an undergraduate advisor in biochemistry.

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, pre-law, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Bachelor of Science

The Bachelor of Science in biochemistry requires a total of 120 s.h., including 73 s.h. of work for the major. The program prepares students to work in positions that require a mastery of general biochemistry. It is also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. major in biochemistry requires the following course work. Biochemistry students also must complete the College of Liberal Arts and Sciences General Education Program.

All of these:

002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.
099:155 Research, Independent Study (required of all honors students) 6 s.h.

Advanced science electives, chosen in consultation with advisor 9 s.h.

One of these sequences:
004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I for Majors - Organic Chemistry II for Majors (preferred) 6 s.h.

Two of these:
004:131 Physical Chemistry I 3 s.h.
004:132 Physical Chemistry II 3 s.h.
099:241 Biophysical Chemistry I 3 s.h.
099:242 Biophysical Chemistry II 3 s.h.

One of these:
004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

Students may register for 099:155 Research, Independent Study only if they have earned an average grade of B or higher in 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry and a grade of B-minus or higher in each 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry; or have consent of advisor and instructor. Students may register for 099:115 Undergraduate Independent Study any time.

Students are encouraged to begin research by taking 099:115 Undergraduate Independent Study (may be taken for a total of 6 s.h.). There are no prerequisites. Students may arrange independently to take this course, or they may request assistance from an undergraduate advisor.

**Bachelor of Arts**

The Bachelor of Arts in biochemistry requires a total of 120 s.h., including 58 s.h. of work for the major. The B.A. major requires the following course work. Biochemistry students also must complete the College of Liberal Arts and Sciences General Education Program.

All of these:
002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
029:011-029:012 College Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.
Advanced science electives, chosen in consultation with advisor 6 s.h.

One of these sequences:
004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I for Majors - Organic Chemistry II for Majors (preferred) 6 s.h.

One of these:
004:131 Physical Chemistry I 3 s.h.
004:132 Physical Chemistry II 3 s.h.
099:241 Biophysical Chemistry I 3 s.h.
099:242 Biophysical Chemistry II 3 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 s.h. or more of 099:115 Undergraduate Independent Study or 099:155 Research, Independent Study (senior research) in their programs.

**B.A. or B.S. with Teacher Licensure**
Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Consult the College of Education for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Science

Before the third semester begins: 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II, 22M:025 Calculus I, 099:001 Orientation and Introduction to the Field of Biochemistry, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 Principles of Biology I and 002:011 Principles of Biology II; 004:121 Organic Chemistry I, 004:122 Organic Chemistry II, and 004:141 Organic Chemistry Laboratory; 22M:026 Calculus II; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:081 Introductory Physics I and 029:082 Introductory Physics II, 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 Physical Chemistry I or 004:132 Physical Chemistry II or 099:241 Biophysical Chemistry I or 099:242 Biophysical Chemistry II, a science elective, and at least 3 s.h. of 099:155 Research, Independent Study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Arts

Before the third semester begins: 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II; math through 22M:026 Calculus II or above; 099:001 Orientation and Introduction to the Field of Biochemistry; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 Principles of Biology I and 002:011 Principles of Biology II, 004:121 Organic Chemistry I and 004:122 Organic Chemistry II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:011 College Physics I and 029:012 College Physics II, 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 Physical Chemistry I or 004:132 Physical Chemistry II or 099:241 Biophysical Chemistry I or 099:242 Biophysical Chemistry II, and a science elective

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn an honors degree in biochemistry. They must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Honors students in biochemistry must complete 099:155 Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report presented at a special open departmental seminar.

Graduate Program

The Department of Biochemistry offers a Master of Science and a Doctor of Philosophy in biochemistry. Students admitted to the graduate program usually pursue the Ph.D. Qualified students may pursue a combined program leading to the M.D./Ph.D. (Medical Scientist Training Program).

Master of Science
The Master of Science in biochemistry requires a minimum of 30 s.h. of graduate credit, thesis research, and a thesis. See "Doctor of Philosophy" for information about the graduate curriculum.

Doctor of Philosophy

The Doctor of Philosophy in biochemistry requires a minimum of 72 s.h. of graduate credit. The focus of the graduate program is on the individual student. Students choose from three curricula to satisfy requirements for the degree: standard, biophysical emphasis, or molecular emphasis.

In the first year, students engage in formal course work and tutorial laboratory experiences that serve as the basis for selecting a topic for thesis research. They spend half of their time in courses and the other half working in four different faculty laboratories (099:261 Research Techniques), where they learn in the context of ongoing research.

All biochemistry graduate students take the following courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:282</td>
<td>Seminar</td>
<td>0-1 s.h.</td>
</tr>
<tr>
<td>156:201</td>
<td>Fundamentals of Gene Expression</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Standard curriculum students also take the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:241-099:242</td>
<td>Biophysical Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>142:215</td>
<td>Transcription and Multifunctional Regulation by RNA</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

Biophysical emphasis students also take the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:241-099:242</td>
<td>Biophysical Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

Molecular emphasis students also take the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:241</td>
<td>Biophysical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or</td>
<td>099:242 Biophysical Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>142:215</td>
<td>Transcription and Multifunctional Regulation by RNA</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

Once students are promoted to the second year of study, they choose research laboratories for Ph.D. thesis research and begin their thesis projects. They take courses that supplement their interests and preparation, including the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>099:237</td>
<td>Topics in Biochemistry and Molecular Biology (at least 1 s.h.)</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>099:238</td>
<td>Topics in Biophysical Chemistry (at least 1 s.h.)</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>099:282</td>
<td>Seminar</td>
<td>0-1 s.h.</td>
</tr>
<tr>
<td>650:270</td>
<td>Principles of Scholarly Integrity</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Research Biochemistry (099:292) and elective science courses numbered 100 or above in other departments satisfy the remaining course requirements.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in successful defense of completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two semesters.

Throughout the program, students are associated with faculty-directed research groups. They receive close personal attention from the biochemistry faculty members who serve as research advisors.

Admission

The graduate program in biochemistry is flexible enough to accommodate students with bachelor's degrees in any of
the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Applicants must have an undergraduate g.p.a. of at least 3.00 and must submit acceptable verbal, quantitative, and analytical scores on the Graduate Record Examination (GRE) General Test. Applicants are encouraged to submit their scores on the GRE Subject Test in Chemistry; Biology; or Biochemistry, Cell, and Molecular Biology.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Research

The department's current research interests include protein structure and function, protein folding, DNA bending, complex carbohydrate structure and function, chromatin, regulation of gene expression, mechanisms of transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, and membrane determinants of cell shape and motility. Visit the Department of Biochemistry web site for details.

Facilities

The Department of Biochemistry is located on the University of Iowa health sciences campus, where it has administrative, research, and teaching facilities in the Bowen Science Building. Departmental research groups also are located in the adjacent Medical Education and Research Facility, the Eckstein Medical Research Building, and in other research facilities.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the facilities for electron and confocal microscopy, fermentation, image analysis, high field NMR, high resolution mass spectrometry, and academic computing (through Information Technology Services). Carver College of Medicine research facilities are available to biochemistry researchers for nuclear magnetic resonance spectroscopy, flow cytometry, DNA synthesis, tissue culture hybridoma, gene transfer, X-ray crystallography analysis, and transgenic and gene targeting.

Individual faculty research laboratories are well-equipped for modern research, and there are many common-use laboratories, including instrument rooms, a reading room, cold rooms, tissue culture areas, preparation rooms, and a stockroom. Research is supported by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges; fluorescence, optical rotatory dispersion, high-field NMR, and rapid kinetic instruments; tissue culture rooms, gas chromatographs, preparative high performance liquid chromatographs, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography and microcalorimetry, automated DNA sequencers, and facilities for microarray analysis.

The department maintains a reading room stocked with primary books and journals used by biochemists. The Hardin Library for the Health Sciences is a large, complete library located on the health sciences campus. Excellent resources also are provided by branches of the University of Iowa Libraries and by computer access to bibliographic retrieval services.

Biochemistry Courses

099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
Biochemistry and its application to other areas of basic sciences; biochemical studies, research, careers.

099:101 Technical Communication in Biochemistry 1 s.h.
Practical aspects of writing formal scientific papers and giving oral presentations on technical topics. Prerequisites: 099:120 or 099:130 or 099:140 or consent of instructor; and senior standing.

099:110 Biochemistry 3 s.h.
Basic concepts in modern biochemistry and molecular biology; understanding of life processes in molecular terms. Prerequisites: one year each of college-level biology and chemistry. Recommended: one semester of organic chemistry.

099:115 Undergraduate Independent Study
Experience in an active biochemistry research lab, learning and performing experiments relevant to the current projects in that lab; exploration of scientific literature on topic of interest; arranged in advance by student and faculty member. Prerequisite: first-year, sophomore, or junior standing.

099:120 Biochemistry and Molecular Biology I
Physical and chemical foundations of biochemistry, structure of biological molecules, catalysis, transport, and oxidative reactions in biology; first course of two-semester sequence that concludes with 099:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 002:010, 002:011, and an additional organic chemistry course.

099:130 Biochemistry and Molecular Biology II
Carbohydrate biosynthesis, lipid metabolism, hormone regulation and integration of metabolism, signal transduction, genes and chromosomes, DNA replication and repair, transcription, RNA processing, protein translation and regulation of gene expression. Prerequisite: 099:120.

099:140 Experimental Biochemistry
Use of modern instruments and techniques to fractionate, identify, and characterize constituents of biochemical systems. Prerequisites: two semesters of general chemistry, one semester of organic chemistry, and 099:120.

099:155 Research, Independent Study
Independent study and research in areas of interest to the student; arranged in advance by student and biochemistry honors advisor. Prerequisites: grade of B- or higher in 099:120, 099:130, and 099:140, and g.p.a. of B or higher in all three courses.

099:161 Biochemistry for Dental Students
Biochemical concepts and application to clinical problems. Prerequisites: 004:121 or consent of instructor, and D.D.S. enrollment or consent of instructor. Recommended: 004:122.

099:162 Biochemistry for Pharmacy Students
Biochemical concepts and application to clinical problems. Prerequisites: 004:121 and Pharm.D. enrollment, or consent of instructor. Recommended: 004:122.

099:163 Medical Biochemistry
Biochemical concepts and application to clinical problems. Prerequisite: M.D. enrollment.

099:164 Biochemistry for Physician Assistant Students
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 099:110 or equivalent biochemistry survey.

099:226 Enzyme Kinetics and Bioorganic Mechanisms
Principles and applications of steady-state and transient enzyme kinetics; mechanisms of catalysis of biochemical reactions. Prerequisite: 099:120 or consent of instructor.

099:237 Topics in Biochemistry and Molecular Biology
Current topics in transcriptional regulation, chromatin structure and function, cell signaling pathways, regulation of development, molecular mechanisms of disease. Repeatable. Prerequisite: 156:201 or consent of instructor.

099:238 Topics in Biophysical Chemistry
Current topics in structure and function of membranes or proteins; DNA-protein interactions; computational biochemistry; applications of NMR, X-ray diffraction, calorimetry, or spectroscopy. Repeatable. Prerequisite: 099:241 or 099:242 or consent of instructor.

099:241 Biophysical Chemistry I

Experimental and theoretical techniques used to study structure and function of biological macromolecules; UV/Vis absorbance, circular dichroism, and fluorescence spectroscopies; X-ray crystallography of proteins, ultracentrifugation; application of thermodynamics to understand protein folding and protein-ligand binding. Prerequisites: one year of biochemistry and consent of instructor. Recommended: physical chemistry course.

099:242 Biophysical Chemistry II 3 s.h.
Enzyme kinetics and mechanisms, macromolecular interactions and dynamics, NMR spectroscopy.

099:243 Introduction to Biophysical Chemistry 1 s.h.
Overview of basic principles and practices of biophysical chemistry; biophysical approaches to studying proteins and nucleic acids; critical evaluation of structural models derived from X-ray crystallography and NMR, quantification of molecular interactions; taken alone or as part of 099:241. Prerequisite: introductory course in biochemistry or equivalent.

099:245 Protein Stability, Folding, and Dynamics 1 s.h.
In-depth examination of protein stability as well as thermodynamics and kinetics of protein folding; statistical thermodynamics, the physical chemistry of biomolecular interactions, experimental approaches to measuring protein stability, protein folding kinetics, molecular dynamics simulations, protein structural predictions; taken alone or as part of 099:241. Prerequisites: introductory course in biochemistry or equivalent.

099:246 Structure and Mechanism of Membrane Proteins 1 s.h.
Overview of membrane proteins; basic principles of membrane proteins, including structure and lipid compositions of cell membranes, membrane protein folding and stability, methods of membrane proteins production, general techniques to study structure and function of membrane proteins; structure and function of biologically significant membrane transporters and receptors. Prerequisite: one year of biochemistry.

099:247 Binding and Macromolecular Interactions 1 s.h.
In-depth examination of principles and practices of studying ligand binding and macromolecular interactions; experimental approaches to study interactions with small molecules, proteins, and nucleic acids; approaches to analyze binding data; structural basis of protein/protein and protein/nucleic acid interactions; taken alone or as part of 099:241. Prerequisites: introductory course in biochemistry or equivalent, and one semester of calculus.

099:248 NMR of Biological Macromolecules 1 s.h.
Basic principles of NMR and applications important for the understanding of structure and function of biological macromolecules; emphasis on methodology and experimental design, interpretation of data, and critical reading of literature; intended for advanced undergraduates and graduate students with an interest in applications of nuclear magnetic resonance (NMR) to problems of structural biology. Prerequisites: one year of biochemistry and one semester of calculus. Recommended: a basic knowledge of biochemistry, spectroscopy, and some previous exposure to NMR from basic chemistry courses.

099:261 Research Techniques 1-5 s.h.
Laboratory rotation for first-year graduate students in biochemistry.

099:275 Perspectives in Biocatalysis 1-3 s.h.

099:282 Seminar 0-1 s.h.
How to evaluate reports of scientific investigations critically; techniques for presenting scientific information.

099:283 Thesis Seminar 1 s.h.
Preparation and oral presentation of thesis proposal. Prerequisite: second-year graduate standing in biochemistry or consent of instructor.

099:292 Research Biochemistry arr.
Thesis research.
Biology

Chair: Bernd Fritzsch
Professors: Jeffrey L. Denburg, Jan Fassler, Joseph Frankel, Bernd Fritzsch, Steven Green (Biology/Otolaryngology--Head and Neck Surgery), Stephen D. Hendrix, Alan Kay, Jim Jung-Ching Lin, Robert E. Malone, Sally Mason, Linda Maxson, John R. Menninger, Jeffrey C. Murray (Pediatrics/Biology), Jonathan E. Poulton, David R. Soll (Carver/Emil Witschi Professor of the Biological Sciences), Chun-Fang Wu


Associate professors: Chi-Lien Cheng, Josep Comeron, Michael E. Dailey, Daniel Eberl (Biology/Otolaryngology--Head and Neck Surgery), Diana G. Horton, Erin Irish, John Logsdon, Bryant F. McAllister, Diane C. Slausarski

Associate professors emeriti: Robert W. Embree, Thomas E. Melcher

Assistant professors: Douglas Houston, Ana Llopart, John Manak, Maurine Neiman, Christopher Stipp, Joshua Weiner

Undergraduate degrees: B.A., B.S. in Biology

Undergraduate nondegree program: Minor in Biology

Graduate degrees: M.S., Ph.D. in Biology

Web site: http://www.biology.uiowa.edu

Undergraduate Programs

The department offers a Bachelor of Arts, a Bachelor of Science, and a minor in biology.

Study in the Department of Biology prepares students for work in a wide variety of fields in educational institutions, government agencies, foundations, health care organizations, and businesses. Undergraduate programs prepare students for entry into research or service careers associated with private industry or government programs, and for primary and secondary teaching. They also prepare students for entry into advanced degree programs leading to careers in higher education and to independent research in a variety of biological fields, or for practice in health professions such as medicine, dentistry, pharmacy, nursing, veterinary medicine, medical technology, and physical therapy.

Bachelor of Science students choose one of six tracks. The Bachelor of Arts program and the comprehensive biology track in the Bachelor of Science provide highly diverse content. The remaining five B.S. tracks emphasize distinct areas: cell and developmental biology, evolutionary biology, genetics and biotechnology, neurobiology, and plant biology.

The B.A. and all six B.S. programs include a core curriculum consisting of the two-semester sequence 002:010 Principles of Biology I and 002:011 Principles of Biology II, 002:128 Fundamental Genetics, and 002:131 Evolution. Each program includes a total of 18-19 courses (63-70 s.h.) in biology, chemistry, physics, and mathematics. All course work prepares students for advanced graduate and professional training in biology and related subjects.

The department offers 002:196 Honors Investigations and 002:199 Introduction to Research to acquaint undergraduate students with the nature of practicing scientists' work. Students associate with one of the department's research groups in experiments, discussion of current research, study of specialized topics, and attendance at research seminars. Admission to the University of Iowa Honors Program is required for 002:196 Honors Investigations. All students who are accepted by a Department of Biology faculty sponsor may take 002:199 Introduction to Research.

Students interested in field biology, zoology, or botany may take varied courses in these subjects offered during the summer at Iowa Lakeside Laboratory, Lake Okoboji, Iowa.

Students who wish to count course work done at another institution toward requirements for a biology degree at Iowa should consult with their biology advisor.

Bachelor of Science in Biology

The Bachelor of Science in biology requires a minimum of 120 s.h., including at least 63-70 s.h. (18 courses) of work for the major. It is divided into six tracks that emphasize the most dynamic and active areas in the biological sciences: cell and developmental biology, genetics and biotechnology, evolutionary biology, neurobiology, plant biology, and comprehensive biology. Students who pursue the B.S. must complete requirements in the chemistry/physics/mathematics foundation, the biology core, and one of the six tracks. Students must complete the College of Liberal Arts and Sciences General Education Program.

CHEMISTRY/PHYSICS/MATHEMATICS FOUNDATION

All of these:
004:011-004:012 Principles of Chemistry I-II 8 s.h.
004:121 Organic Chemistry I 3 s.h.

One of these sequences:
029:011-029:012 College Physics I-II 8 s.h.
029:081-029:082 Introductory Physics I-II

One of these:
22M:016 Calculus for the Biological Sciences 4 s.h.
22M:025 Calculus I 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

One of these:
22S:030 Statistical Methods and Computing (preferred for evolution track) 3 s.h.
22S:101 Biostatistics 3 s.h.

BIOLOGY CORE

002:010-002:011 Principles of Biology I-II 8 s.h.
002:128 Fundamental Genetics 4 s.h.
002:131 Evolution 4 s.h.

Tracks for the Bachelor of Science

Students pursuing the B.S. must select a single track. Each track includes seven courses. Students who choose 002:196 Honors Investigations to fulfill a track requirement must complete a minimum of 6 s.h. in that course. Honors Investigations may be used to fulfill a requirement only in a single category in each track. If it is used to fulfill the investigative laboratory requirement, it cannot also be used to fulfill the elective requirement; if it is used to fulfill the elective requirement, it cannot also be used to fulfill the investigative laboratory requirement.

CELL AND DEVELOPMENTAL BIOLOGY TRACK

The cell and developmental biology track provides education in the structure and function of cells and in the principles of development as they apply to animals and plants. This track is appropriate for students who wish to pursue graduate study in cellular and developmental biology, to prepare for professional study in medicine and other health-related fields, or to take positions in laboratories and companies engaged in cancer research and related fields.

Group 1 (Developmental Biology)

Both of these:
002:104 Introduction to Developmental Biology 3 s.h.
002:117 Plant Developmental Biology 3 s.h.

Group 2 (Biochemistry)

One of these:
099:110 Biochemistry 3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 3 (Cellular Biology)

One of these:
002:114 Cell Biology 3 s.h.
002:155 Cell Physiology 4 s.h.

Group 4 (Investigative Laboratory)

One of these:
002:133 Cell Biology Laboratory 3 s.h.
At least two courses, which may include any combination of courses not taken for Group 3 and/or 4 and/or courses from the following list:

- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:145 Introduction to Neurobiology 3 s.h.
- 002:150 Endocrinology 3 s.h.
- 002:168 Genes and Development 3 s.h.
- 002:171 Molecular Genetics 4 s.h.
- 002:180 Fundamental Neurobiology 4 s.h.
- 002:184 Developmental Neurobiology 3 s.h.
- 061:147 Survey of Immunology 4 s.h.
- 061:157 General Microbiology 5 s.h.

**EVOLUTIONARY BIOLOGY TRACK**

The evolutionary biology track provides education in the principles of evolution as they apply to understanding diversity within and among species, from genomic, ecological, and historical perspectives. This track is appropriate for students who wish to pursue graduate study in evolutionary biology and related fields or to take positions in laboratories utilizing population genetics or phylogenetic approaches such as forensics, fisheries, and human disease mapping.

**Group 1 (Evolution Core)**

- 002:134 Ecology 4 s.h.

One of these:

- 002:169 Introduction to Bioinformatics 4 s.h.
- 002:170 Bioinformatics 3 s.h.
- 002:178 Genomics 3 s.h.

One of these:

- 002:160 Molecular Phylogenetics 3 s.h.
- 002:162 Population Genetics and Molecular Evolution 3 s.h.

**Group 2 (Biochemistry)**

One of these:

- 099:110 Biochemistry 3 s.h.
- 099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

**Group 3 (Investigative Laboratory)**

One of these:

- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:148 Field Ecology 4 s.h.
- 002:196 Honors Investigations (in evolution) 6 s.h.
Group 4 (Electives)

At least two courses, which may include any combination of courses not taken for Groups 1 and/or 3 and/or courses from the following list:

002:100 Plant Diversity and Evolution 4 s.h.
002:103 Biogeography 3 s.h.
002:108 Vertebrate Zoology 4 s.h.
002:136 Conservation Biology 4 s.h.
002:140 Systematics: Classifying Biodiversity 3 s.h.
002:143 Animal Behavior 4 s.h.
012:122 Evolution of the Vertebrates 3 s.h.
012:170 Evolution of Ecosystems 3 s.h.
22C:016 Computer Science I: Fundamentals 4 s.h.
22S:120 Probability and Statistics 4 s.h.
213:120 Primate Evolutionary Biology 3 s.h.
213:116 Modern Human Origins 3 s.h.
213:151 Anthropological Genetics 3 s.h.

GENETICS AND BIOTECHNOLOGY TRACK

The genetics and biotechnology track provides education in the key principles of transmission, maintenance, regulation, and manipulation of genes. This track is appropriate for students who wish to pursue graduate study in fields related to genetics or to enter the modern biotechnology industry. It also provides excellent preparation for professional study in medicine and other health-related fields.

Group 1 (Genetics Core)

Both of these:

002:171 Molecular Genetics 4 s.h.
061:170 Microbial Genetics 3 s.h.

One of these:

002:169 Introduction to Bioinformatics 4 s.h.
002:170 Bioinformatics 3 s.h.
002:178 Genomics 3 s.h.

Group 2 (Biochemistry)

One of these:

099:110 Biochemistry 3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 3 (Investigative Laboratory)

One of these:

002:138 Genetics and Biotechnology Lab 3 s.h.
002:196 Honors Investigations (in genetics/biotechnology) 6 s.h.

Group 4 (Electives)

At least two courses; may include any combination of courses not taken for Group 1; 099:130 Biochemistry and Molecular Biology II if 099:120 Biochemistry and Molecular Biology I and 099:130 Biochemistry and Molecular Biology II are chosen from Group 2, and/or the course that has not been taken for Group 3, and/or courses from the following list:
002:104 Introduction to Developmental Biology 3 s.h.
or
002:117 Plant Developmental Biology 3 s.h.

002:114 Cell Biology 3 s.h.
002:133 Cell Biology Laboratory 3 s.h.
002:162 Population Genetics and Molecular Evolution 3 s.h.
002:168 Genes and Development 3 s.h.
061:147 Survey of Immunology 4 s.h.

NEUROBIOLOGY TRACK

The neurobiology track provides education in nervous system function at all levels, from molecular to systems biology. This track is appropriate for students who wish to pursue graduate study in neurobiology and related areas, including psychology and the social sciences; to enter laboratories than study the therapeutic basis of neurological disorders; or to work in pharmaceutical companies. It also provides good preparation for professional study in medicine and other health-related fields.

Group 1 (Neurobiology Core)

All of these:

002:143 Animal Behavior 4 s.h.
002:145 Introduction to Neurobiology 3 s.h.
002:180 Fundamental Neurobiology 4 s.h.

Group 2 (Biochemistry)

One of these:

099:110 Biochemistry 3 s.h.
099:120 & 099:130 Biochemistry and Molecular Biology I-II 6 s.h.

Group 3 (Investigative Laboratory)

One of these:

002:133 Cell Biology Laboratory 3 s.h.
002:135 Developmental Biology Lab 3 s.h.
002:186 Neurobiology Laboratory 3 s.h.
002:196 Honors Investigations (in neurobiology) 6 s.h.
031:177 Field Methods: Animal Behavior Research 3 s.h.

Group 4 (Electives)

At least two courses, which may include any combination of a course not taken for Group 3 and/or courses from the following list:

002:114 Cell Biology 3 s.h.
or
002:155 Cell Physiology 4 s.h.

002:104 Introduction to Developmental Biology 3 s.h.
002:124 Animal Physiology 3 s.h.
002:150 Endocrinology 3 s.h.
002:181 Neurophysiology 3 s.h.
002:184 Developmental Neurobiology 3 s.h.
PLANT BIOLOGY TRACK

The plant biology track provides education in how plants grow, how they have evolved, and how they interact with other organisms. This track is appropriate for students who wish to pursue graduate study in biology specializing in plants. It also is good preparation for positions in plant biotechnology companies that work in biofuels development, crop improvement, or CO\textsubscript{2} sequestration, or in agencies dedicated to the conservation of natural lands.

Group 1 (Plant Biology Core)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:117</td>
<td>Plant Developmental Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>One of these:</td>
<td></td>
</tr>
<tr>
<td>002:100</td>
<td>Plant Diversity and Evolution</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:103</td>
<td>Biogeography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:140</td>
<td>Systematics: Classifying Biodiversity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>One of these:</td>
<td></td>
</tr>
<tr>
<td>002:113</td>
<td>Ecological Plant Anatomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:134</td>
<td>Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>012:170</td>
<td>Evolution of Ecosystems</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Group 2 (Biochemistry)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>One of these:</td>
<td></td>
</tr>
<tr>
<td>099:110</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:120 &amp; 099:130</td>
<td>Biochemistry and Molecular Biology I-II</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

Group 3 (Investigative Laboratory)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>One of these:</td>
<td></td>
</tr>
<tr>
<td>002:138</td>
<td>Genetics and Biotechnology Lab</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:196</td>
<td>Honors Investigations (in plant biology)</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

Group 4 (Electives)

Students must take at least two courses, which may include 099:130 if 099:120 and 099:130 are chosen from group 2; and/or courses from the following list; and/or approved plant biology courses offered at Iowa Lakeside Laboratory (students should consult their advisors).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:104</td>
<td>Introduction to Developmental Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:114</td>
<td>Cell Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:171</td>
<td>Molecular Genetics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:162</td>
<td>Population Genetics and Molecular Evolution</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

COMPREHENSIVE BIOLOGY TRACK

The comprehensive biology track is designed for students who wish a diverse, well-balanced introduction to the major fields of biology. This track provides suitable educational background for graduate study in the biological sciences and science education and for work in laboratories that engage in research and applications in many fields of biology. It also provides broadly based preparation for professional study in medicine and other health-related fields.

Group 1 (Biochemistry)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>One of these:</td>
<td></td>
</tr>
<tr>
<td>099:110</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:120 &amp; 099:130</td>
<td>Biochemistry and Molecular Biology I-II</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>
Group 2 (Molecular Biology)

Students must take at least one course, either 099:130 Biochemistry and Molecular Biology II if 099:120 Biochemistry and Molecular Biology I and 099:130 Biochemistry and Molecular Biology II is chosen in group 1 or a course from the following list.

- 002:171 Molecular Genetics 4 s.h.
- 002:178 Genomics 3 s.h.

Group 3 (Cellular Biology)

At least one of these:

- 002:114 Cell Biology 3 s.h.
- 002:155 Cell Physiology 4 s.h.
- 002:180 Fundamental Neurobiology 4 s.h.

Group 4 (Developmental Biology)

At least one of these:

- 002:104 Introduction to Developmental Biology 3 s.h.
- 002:117 Plant Developmental Biology 3 s.h.

Group 5 (Organismal Physiology)

At least one of these:

- 002:124 Animal Physiology 3 s.h.
- 002:145 Introduction to Neurobiology 3 s.h.
- 002:150 Endocrinology 3 s.h.

Group 6 (Population Biology)

At least one of these:

- 002:100 Plant Diversity and Evolution 4 s.h.
- 002:103 Biogeography 3 s.h.
- 002:134 Ecology 4 s.h.
- 002:140 Systematics: Classifying Biodiversity 3 s.h.

Group 7 (Investigative Laboratory)

At least one of these:

- 002:133 Cell Biology Laboratory 3 s.h.
- 002:135 Developmental Biology Lab 3 s.h.
- 002:136 Conservation Biology 4 s.h.
- 002:138 Genetics and Biotechnology Lab 3 s.h.
- 002:148 Field Ecology 4 s.h.
- 002:186 Neurobiology Laboratory 3 s.h.
- 002:196 Honors Investigations 6 s.h.
- 031:177 Field Methods: Animal Behavior Research 3 s.h.

Iowa Lakeside Laboratory courses (students consult their advisors) 4-5 s.h.
**Suggested First-Year Schedule**

The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. in biology.

**First-Semester Science Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011</td>
<td>Principles of Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Calculus or mathematics leading to</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td></td>
<td>calculus</td>
<td></td>
</tr>
</tbody>
</table>

**Second-Semester Science Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:010</td>
<td>Principles of Biology I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>004:012</td>
<td>Principles of Chemistry II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Calculus (if not taken during the</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>first semester)</td>
<td></td>
</tr>
</tbody>
</table>

**Bachelor of Arts in Biology**

The Bachelor of Arts in biology requires a minimum of 120 s.h., including at least 66-70 s.h. (19 courses) of work for the major. The B.A. is broadly based. It introduces students to key concepts in important areas of biology and, compared to the B.S., gives them more flexibility in choosing elective courses.

B.A. students must complete a chemistry/physics/math foundation; a biology core identical to that required for the B.S.; one course in each of three breadth menus; one course with a laboratory; and three elective courses, which may include one course in the history or philosophy of science. Students must complete the College of Liberal Arts and Sciences General Education Program.

The B.A. prepares students for graduate study in the biological sciences and is especially appropriate for those interested in careers in biological science education at all levels. It also provides suitable preparation for professional positions in laboratory or field research or for professional study in medicine and other health-related fields.

**CHEMISTRY/PHYSICS/MATHEMATICS FOUNDATION**

All of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011-004:012</td>
<td>Principles of Chemistry I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>004:121</td>
<td>Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:122</td>
<td>Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:110</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these sequences:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>029:011-029:012</td>
<td>College Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>029:081-029:082</td>
<td>Introductory Physics I-II</td>
<td>8 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:016</td>
<td>Calculus for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:025</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Variable Calculus</td>
<td></td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22S:030</td>
<td>Statistical Methods and Computing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:101</td>
<td>Biostatistics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
BIOLOGY CORE

002:010-002:011 Principles of Biology I-II 8 s.h.
002:128 Fundamental Genetics 4 s.h.
002:131 Evolution 4 s.h.

BREADTH MENUS

At least one course from each of the following three breadth menus:

Molecular and Cellular Biology

002:114 Cell Biology 3 s.h.
002:155 Cell Physiology 4 s.h.
002:171 Molecular Genetics 4 s.h.

Developmental Biology and Physiology

002:104 Introduction to Developmental Biology 3 s.h.
002:117 Plant Developmental Biology 3 s.h.
002:124 Animal Physiology 3 s.h.
002:145 Introduction to Neurobiology 3 s.h.
002:150 Endocrinology 3 s.h.

Ecology and Evolutionary Biology

002:100 Plant Diversity and Evolution 4 s.h.
002:103 Biogeography 3 s.h.
002:134 Ecology 4 s.h.
002:140 Systematics: Classifying Biodiversity 3 s.h.

COURSE WITH A LABORATORY

One of these (must not have been used as a breadth menu course):

002:100 Plant Diversity and Evolution 4 s.h.
002:108 Vertebrate Zoology 4 s.h.
002:113 Ecological Plant Anatomy 4 s.h.
002:133 Cell Biology Laboratory 3 s.h.
002:135 Developmental Biology Lab 3 s.h.
002:136 Conservation Biology 4 s.h.
002:138 Genetics and Biotechnology Lab 3 s.h.
002:148 Field Ecology 4 s.h.
002:186 Neurobiology Laboratory 3 s.h.
002:196 Honors Investigations 6 s.h.
012:121 Principles of Paleontology 3 s.h.
031:177 Field Methods: Animal Behavior Research 3 s.h.
061:157 General Microbiology 5 s.h.
099:140 Experimental Biochemistry 4 s.h.

ELECTIVES

At least three courses, which may include any course chosen from a breadth menu or from the list of courses with a laboratory that has not been used to satisfy those requirements, any other 2-4 s.h. course numbered 100 or above offered by the Department of Biology, any approved advanced biology course taught at the Iowa Lakeside Laboratory...
(students consult their advisors), and/or any course(s) chosen from the following list:

- 012:122 Evolution of the Vertebrates  3 s.h.
- 012:170 Evolution of Ecosystems  3 s.h.
- 027:155 Skeletal Muscle Biology  3 s.h.
- 061:147 Survey of Immunology  4 s.h.
- 213:116 Modern Human Origins  3 s.h.
- 213:151 Anthropological Genetics  3 s.h.
- 213:152 Primate Conservation Biology  3 s.h.
- 213:170 Primate Evolutionary Biology  3 s.h.
- 213:188 Primate Behavior and Ecology  3 s.h.

One of the electives may be chosen from these:

- 016:136/152:136 History of Medicine in Western Society  3 s.h.
- 16E:139 Ancient and Medieval Science  3 s.h.
- 16W:137/152:137 History of Public Health  3 s.h.
- 16W:138/152:138 History of International Health  3 s.h.
- 026:104 Introduction to Philosophy of Science  3 s.h.
- 032:162 Genes and the Human Condition  3 s.h.
- 044:131/152:131 Geography of Health  3 s.h.

In addition, students who have passed 004:121 Organic Chemistry I, 004:122 Organic Chemistry II, and 099:110 Biochemistry may use 099:110 Biochemistry as a biology elective.

Introduction to Research (002:199) for 3 s.h. may be counted only once toward the elective requirement for the B.A.

**Suggested First-Year Schedule**

The following first-year schedule of science courses is recommended for students seeking either the B.S. or B.A. in biology.

**First-Semester Science Courses**

- 004:011 Principles of Chemistry I  4 s.h.
- Calculus or mathematics leading to calculus  3-4 s.h.

**Second-Semester Science Courses**

- 004:012 Principles of Chemistry II  4 s.h.
- 002:010 Principles of Biology I  4 s.h.
- Calculus (if not taken during the first semester)  4 s.h.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major, exclusive of courses in the chemistry/physics/mathematics foundation.)

**Bachelor of Science**

**Before the third semester begins:** math through calculus I, 004:011 Principles of Chemistry I, 004:012 Principles of Chemistry II, 002:010 Principles of Biology I, and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** the courses listed above, plus 002:011 Principles of Biology II, 004:121 Organic Chemistry I, 22S:030 Statistical Methods and Computing or 22S:101 Biostatistics, two other courses in the major, and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** the courses listed above, 029:011 College Physics I and 029:012 College Physics II or equivalents, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** the courses listed above, plus two or three more courses in the major
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Arts

Before the third semester begins: math through calculus I, 004:011 Principles of Chemistry I, 004:012 Principles of Chemistry II, 002:010 Principles of Biology I, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, 002:011 Principles of Biology II, 004:121 Organic Chemistry I, 22S:030 Statistical Methods and Computing or 22S:101 Biostatistics, three other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, 029:011 College Physics I and 029:012 College Physics II or equivalents, plus five or six more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Biology majors who are members of the University of Iowa Honors Program may enroll in the Honors Program in Biology, which gives talented students membership in a small, active group of undergraduates with common interests. Honors students gain an introduction to the pursuits of practicing scientists by associating with one of the department's research groups and participating in an independent research project guided by a faculty member (the research supervisor). Honors students write a thesis that should be based on an interesting biological problem, which is usually identified by the research supervisor. The thesis should clearly document that the student has acquired the necessary experimental skills to address specific questions and test specific hypotheses related to the research problem. Honors Seminar in Biology (002:198), or equivalent seminar, provides students with an ideal opportunity to improve their skills in seminar presentation and in writing scientific English. Throughout undergraduate residence, biology honors students may also take advantage of enrollment in honors sections of courses within the department and the college.

Membership in the University of Iowa Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33. To graduate with honors in biology, students must complete the requirements for a B.S. or B.A. in biology with a g.p.a. of at least 3.33 in all course work in the biology major taken at The University of Iowa (including all biology courses and cognates in chemistry, physics, biochemistry, mathematics, and statistics). In addition, students must fulfill the following requirements: complete 2 s.h. in either 002:198 Honors Seminar in Biology or an advanced-level biology seminar course; complete a minimum of 6 s.h. (taken over two or more semesters) of 002:196 Honors Investigations; write a brief research proposal summarizing the background and goals of their proposed honors research; upon completion of their research, submit an acceptable honors thesis; and give a brief oral presentation of their research findings to other biology honors students.

Students pursuing a B.S. in biology may apply 6 s.h. of 002:196 Honors Investigations toward the investigative laboratory requirement in an appropriate track. Students pursuing a B.A. in biology may apply 6 s.h. of 002:196 Honors Investigations toward the elective laboratory course requirement and count the 2 s.h. earned in 002:198 Honors Seminar in Biology toward the elective requirement.

Biology majors interested in pursuing an honors degree should contact the biology honors advisor as early as possible, preferably in their sophomore or junior year, so that they may be matched with an appropriate lab.

Minor

The minor in biology requires a minimum of 15 s.h. in biology courses, including 12 s.h. in 100-level courses offered by the Department of Biology at The University of Iowa or in approved Iowa Lakeside Laboratory courses. Students must maintain a g.p.a. of at least 2.00 in the minor and in the 100-level courses. Course work in the minor may not be taken pass/nonpass. Students may not use transfer courses to satisfy the 100-level course requirement.

Graduate Programs

The Department of Biology offers a Master of Science, with and without thesis, and a Doctor of Philosophy in biology. The department emphasizes the Ph.D.

The department's graduate programs emphasize original research and the skills essential for publishing and communicating research findings to the biology community. They prepare students for careers in the academic research community, education, industry, and government.
Research programs in the department cover most areas of the biological sciences: cell biology, developmental biology, ecology, evolution, genetics, neurobiology, and plant biology. Doctoral students who wish to specialize in one of four subtracks choose from cell and developmental biology, evolution, genetics, or neurobiology. For each track's requirements, see Graduate Programs on the Department of Biology web site.

When a new graduate student is admitted, he or she is assigned a temporary advisor. The student and advisor meet before registration to discuss the student's educational background and to formulate a study plan for the first year. Students may be advised to take specific course work to enhance their background in certain areas.

During the first year, students whose preparation in chemistry, genetics, mathematics, and physics does not meet the department's graduate entry requirements must remedy deficiencies by taking appropriate course work.

Minimum entry requirements are:

- two semesters of organic chemistry or one semester of organic chemistry and one semester of biochemistry;
- one semester of calculus;
- two semesters of college physics; and
- 20 s.h. of course work in biology.

A student with a bachelor's degree outside the biological sciences may request modification of certain area requirements; the Graduate Affairs Committee decides whether portions of the requirements may be waived. Students also take 002:128 Fundamental Genetics during the first year, unless they are excused from this requirement by the Graduate Affairs Committee. After the first year, students are advised by their research sponsor and dissertation committee.

**Master of Science**

The Master of Science in biology requires 30 s.h. of graduate credit with thesis, and 34 s.h. of graduate credit without thesis. All M.S. students take a seminar (2 s.h.) with a substantial writing and oral presentation requirement and two advanced lecture-based courses in biology. Students receive academic credit for courses required for an M.S. or Ph.D. but not for courses taken to remedy undergraduate deficiencies.

Thesis students may count a maximum of 9 s.h. of research credit toward the degree. Remaining course work is tailored to the student's background and career goals and is selected in consultation with the student's advisory committee. The thesis is based on original research. After the thesis is accepted by the student's supervisor and advisory committee, the student must pass an oral examination based on the thesis research and on related subjects.

Nonthesis students must write a library research report for a maximum of 4 s.h. of credit. They may apply up to 8 s.h. of research credit toward the degree. The nonthesis program may include credit earned in biology or cognate sciences; course work is tailored to the student's background and career goals and is selected in consultation with the student's advisory committee.

On completion of the 34 s.h. and acceptance of the research report by the faculty sponsor, the student must pass a written examination covering the graduate program in biology, including the area of the research report.

**Doctor of Philosophy**

The Doctor of Philosophy in biology requires a minimum of 72 s.h. of graduate credit.

The department expects new Ph.D. students to do research in three laboratories on a rotating basis during their first academic year (August-May). Students consult with their temporary advisors and with prospective faculty research sponsors before identifying their preferences for research rotations. They choose a permanent laboratory affiliation based on their rotations.

During the first academic year, students are required to enroll in the department's colloquium, which is based on a weekly Friday seminar series. In the second semester, the colloquium includes a discussion component based on the weekly seminar series. During the first two years, students must enroll in at least two advanced lecture courses, one seminar course (2 s.h.) that has a significant writing component, and a course on scientific writing designed for graduate students.

Additional formal course work and proficiency requirements for each Ph.D. student are determined by the dissertation committee on the basis of the student's background and current and prospective research interests. The dissertation committee also determines what portion of the formal course or proficiency requirements the student must complete before the comprehensive examination. In this examination, students must demonstrate knowledge of biology fundamentals and the analytic and synthetic skills necessary to become creative, independent scientists. Once they complete the course work and proficiency requirements and pass the comprehensive examination, students may be admitted to full candidacy for the Ph.D.
Students also must demonstrate teaching skills by assisting in instruction as teaching assistants for at least two semesters.

The program culminates in students' preparation of a dissertation based on original, independent research. Students must pass a final examination that covers the thesis and its specialized field before the Ph.D. is awarded.

**Admission**

Application materials for the graduate program must be sent both to the University's Office of Admissions and to the Department of Biology graduate admissions committee. Complete instructions are listed on the application form; contact the Department of Biology or visit its web site. Applicants should have official transcripts from each undergraduate and graduate institution they have attended sent to both the Office of Admissions and the Department of Biology. They also should arrange to have official scores from the Graduate Record Examination (GRE) General Test (verbal, quantitative, and analytical writing) sent to both offices. A valid B.S. or B.A. from an accredited institution is required.

Applicants whose first language is not English must score at least 570 (paper-based), 230 (computer-based), or 88 (Internet-based) on the Test of English as a Foreign Language (TOEFL), and have their score sent to the Office of Admissions. International applicants who received their degrees (either bachelor's or master's) from a U.S. institution are exempt from this requirement. All international students whose first language is not English are required to take an English proficiency exam when they first enroll for classes.

Successful applicants for graduate admission usually have a g.p.a. of at least 3.00 and score above 1200 on the Graduate Record Examination (GRE) General Test (combined verbal and quantitative). These criteria are general guidelines for the admissions committee, which also considers letters of recommendation, research experience, and other appropriate criteria.

The department recommends that applicants also take the Graduate Record Examination advanced biology test and submit their scores. Although most applicants have completed undergraduate programs in biology, the department also considers applicants with backgrounds in biophysics, botany, biochemistry, molecular biology, microbiology, and other related areas.

Applications should be submitted by February 1 and must include the GRE test scores. In order to meet the deadline, applicants must take the GRE in October or earlier. Late applications are considered as placement and funding permit.

Students applying for admission to the M.S. with thesis program in biology should have a bachelor's degree in one of the biological sciences. Students with bachelor's degrees in other areas may need to register as nondegree students (A9 or G9) and make up the equivalent of the department's bachelor's degree program prior to consideration for admission. Nondegree students must complete chemistry, physics, and calculus requirements in addition to the biology courses listed in the undergraduate program. Nondegree students should consult the department's graduate program administrator before applying for admission.

The M.S. degree without thesis is an exit degree. Students are not permitted to enter as graduate students with this degree objective.

For more information, visit the Department of Biology web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Financial Support**

All graduate students making satisfactory progress toward the Ph.D. receive stipend and full tuition support from non-University of Iowa fellowships, teaching assistantships, or research assistantships available through individual research grants administered by faculty members or by the University. First-year Ph.D. students are supported by department fellowships during the research rotation period.

**Facilities**

The department is housed in three contiguous buildings, with modern facilities and equipment for state-of-the-art research. A new research and teaching building was completed in spring 2000, and extensive renovation of the preexisting facilities was completed in spring 2004.

Facilities include the Keck Dynamic Image Analysis Facility, which couples sophisticated state-of-the-art microscopy and computerized motion analysis to permit three-dimensional real-time analysis of cell movement in vitro and in situ. The Carver Center for Comparative Genomics houses the department's DNA sequencing, quantitative PCR, functional genomics/microarray facilities, and informatics facilities.
A well-staffed microscopy and imaging facility, including access to a newly established confocal microscope, is available for teaching and research.

Two large greenhouses are used in plant research and education.

The department also houses animal-care facilities suitable for mice, rats, rabbits, *Xenopus laevis*, and zebra fish. These facilities are managed by the University's animal care unit, which is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care. A central University facility provides assistance in the preparation of transgenic mice.

The department is also the home of the Developmental Studies Hybridoma Bank, which is affiliated with the National Institute of Health. The hybridoma bank collects and distributes monoclonal antibodies that originate in laboratories all over the world. Its collection now contains more than 700 monoclonal antibodies that are distributed to users internationally for a modest fee.

In addition to department facilities, campuswide facilities include a DNA oligonucleotide synthesis and enzyme lab, oligopeptide synthesis and sequencing equipment, and mass- and NMR spectroscopy facilities. The Center for Biocatalysis and Bioprocessing is available for growing large amounts of microorganisms (e.g., 100 liters) for use in protein isolation.

**Iowa Lakeside Laboratory**

The Iowa Lakeside Laboratory is a field station run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa. Located on West Lake Okoboji, in northwestern Iowa, the laboratory affords excellent conditions for summer study in field biology, limnology, phycology, aquatic ecology, pollination biology, and plant taxonomy. It offers a wide variety of summer courses at the undergraduate and graduate levels. Students should check with their advisors to determine whether specific courses may be counted toward requirements for graduation. See Iowa Lakeside Laboratory (University College) in the Catalog or visit the Iowa Lakeside Laboratory web site.

**Biology Courses**

Many courses include field and/or laboratory components.

**For Precollege Students**

**002:004 Secondary Student Training Program**

Special projects. Prerequisite: secondary school enrollment.

**Primarily for Undergraduates**

**002:001 Introduction to Botany**

Biology of plant life; emphasis on structure, function, reproduction, inheritance, diversity, evolution. Prerequisite: one year of high school chemistry. GE: Natural Sciences.

**002:002 Introductory Animal Biology**

Fundamental principles: cells and macromolecules, energy metabolism, organismic physiology, genetics, development, ecology, and evolution. Prerequisite: one year of high school chemistry. Recommended: 004:007. GE: Natural Sciences.

**002:010 Principles of Biology I**

Structure and function of cells; structure, function, reproduction of higher plants and vertebrate animals; first of two-semester course sequence. Prerequisite: 004:011. GE: Natural Sciences.

**002:011 Principles of Biology II**

Continuation of 002:010; genetics, development, immunology, ecology, evolution. Prerequisites: 002:010 and 004:011. GE: Natural Sciences.

**Elementary Topics of General Interest**

These courses are not open to graduate students and do not provide credit toward a biology major.

**002:021 Human Biology**
Molecular and cellular basis of human life; integration of humans and the biosphere through photosynthesis, respiration; structure, function of human tissues, organs, organ systems; reproduction, genetics, impact of molecular biology and genetic engineering; lecture, laboratory. GE: Natural Sciences.

**002:022 Ecology and Evolution** 3 s.h.
Evolution and diversity of living things, their patterns on Earth, their organization in ecological systems; dynamics of evolutionary processes. GE: Natural Sciences.

**002:029 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

**002:040 Biology of the Brain** 3 s.h.
Experimental studies of brain structure and function; consciousness; self; nature of mental illness; genetic and environmental determinants of behavior; for nonscience majors. GE: Natural Sciences.

**002:081 Human Genetics in the Twenty-First Century** 3 s.h.
Heredity in human families, populations; genetic basis of normal, abnormal traits; chromosome behavior; molecular basis of genetics; sex determination. GE: Natural Sciences.

**002:087 Spring Flora** 3 s.h.
Recognition and identification of spring-flowering herbaceous plants, native woodland trees and shrubs, woody landscape plants; family characteristics, use of taxonomic key.

**002:095 Plants and Human Affairs** 2-3 s.h.
How plants are useful to people: food, clothing, shelter, medicines, psychoactive agents; plants' social, economic, ecological significance. GE: Natural Sciences.

**For Undergraduate and Graduate Students**

**002:100 Plant Diversity and Evolution** 4 s.h.
Major groups, including algae, bryophytes, ferns and fern allies, gymnosperms, primitive angiosperms; emphasis on evolutionary implications of structure, reproductive biology, ecological adaptations; extant representatives of each plant group, reference to paleobotanical evidence. Prerequisite: 002:001, or 002:010 and 002:011, or equivalents.

**002:101 Teaching Internship in Biology** 2 s.h.
Training in teaching the laboratory component of a large General Education biology course; weekly session with instructor, shadowing and assisting a graduate teaching assistant in a lab section, leading laboratory exercises. Prerequisites: grade of B or higher in 002:010 and 002:011, junior or senior standing, and consent of instructor.

**002:103 Biogeography** 3 s.h.
Patterns of plant and animal distribution and their interpretation; historical geography, including glaciation, plate tectonics; ecological geography, including physical factors such as climate, geology. Prerequisite: 002:001, or 002:010 and 002:011, or 044:003, or consent of instructor. Same as 044:103.

**002:104 Introduction to Developmental Biology** 3 s.h.
Fundamental mechanisms in differentiation, organogenesis, morphogenesis; and pattern formation; mechanistic approach at molecular, cellular, tissue levels of organizations. Prerequisites: grades of C- or higher in 002:011 and 002:128; and 004:012.

**002:108 Vertebrate Zoology** 4 s.h.
Vertebrate diversity, success in relation to evolutionary history, and adaptive radiation of fish, amphibians, reptiles, birds, mammals; physiological, morphological, behavioral, life history adaptations; vertebrate zoogeography, systematics, patterns of reproduction, social systems. Prerequisites: 002:010 and 002:011, or consent of instructor.

**002:113 Ecological Plant Anatomy** 4 s.h.
Fundamental tissue systems of vascular plants, emphasis on seed plants; development, differentiation of each cell type, arrangement in primary and secondary plant body; focus on relationships between structure, function. Prerequisite: 002:001, or 002:010 and 002:011, or equivalents.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>002:114</td>
<td><strong>Cell Biology</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Structures of cells and organelles in relation to</td>
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<td>their functions at molecular, cellular levels;</td>
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<td></td>
<td>emphasis on higher eukaryotic cells. Prerequisites:</td>
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<td>002:010 and 002:011, and 004:012 or equivalent.</td>
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<tr>
<td>002:117</td>
<td><strong>Plant Developmental Biology</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Developmental processes throughout life cycle of</td>
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<td></td>
<td>vascular plants; current knowledge of mechanisms,</td>
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<td>control; emphasis on molecular, genetic approaches</td>
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<td></td>
<td>to development, including transposon tagging,</td>
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<td></td>
<td>transformation. Prerequisite: 002:128.</td>
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<tr>
<td>002:124</td>
<td><strong>Animal Physiology</strong></td>
<td>3 s.h.</td>
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<td></td>
<td>Principles of cellular and systems physiology;</td>
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<td>emphasis on experimental and quantitative aspects.</td>
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<td></td>
<td>Prerequisites: 002:010, 002:011, and 029:011 or</td>
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<td>029:081 or consent of instructor. Pre- or</td>
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<td></td>
<td>corequisite: 029:012 or 029:082.</td>
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<tr>
<td>002:128</td>
<td><strong>Fundamental Genetics</strong></td>
<td>3-4 s.h.</td>
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<td></td>
<td>Nature, function of genetic material: classical,</td>
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<td>molecular, developmental aspects. Prerequisites:</td>
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<td></td>
<td>002:010, 004:012, and grade of C- or higher in</td>
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<td>002:011. Pre- or corequisite: 004:121.</td>
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<tr>
<td>002:131</td>
<td><strong>Evolution</strong></td>
<td>4 s.h.</td>
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<td>Nature, evidence, analysis, implications,</td>
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<td>molecular/genetic basis; historical record,</td>
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<td>phylogeny, speciation, adaptation, investigative</td>
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<td>methods. Prerequisites: grade of C- or higher in</td>
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<td></td>
<td>002:128, and 22M:016 or 22M:025 or 22M:031 or</td>
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<td>22S:030 or 22S:101.</td>
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<tr>
<td>002:133</td>
<td><strong>Cell Biology Laboratory</strong></td>
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<tr>
<td></td>
<td>Conceptual understanding and technical skills in</td>
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<td></td>
<td>fluorescence microscopy and digital imaging,</td>
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<td>mammalian cell culture, tissue fractionation,</td>
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<td>centrifugation, electrophoresis, and expression</td>
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<td></td>
<td>of recombinant proteins. Prerequisites: 002:010</td>
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<td></td>
<td>and 002:011. Pre- or corequisite: a 100-level</td>
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<td></td>
<td>course in biology, biochemistry, or microbiology.</td>
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<tr>
<td>002:134</td>
<td><strong>Ecology</strong></td>
<td>4 s.h.</td>
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<td></td>
<td>Adaptations of organisms to their physical and</td>
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<td>biological environments; organism-environment</td>
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<td>interactions; population biology; interactions</td>
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<td></td>
<td>between species; ecology of communities,</td>
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<td>ecosystems; human impact on ecosystems. Pr</td>
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<td>requiries: 002:010, 002:011, and 22M:016 or 22M:</td>
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<td>025 or 22M:031. Same as 159:134.</td>
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<tr>
<td>002:135</td>
<td><strong>Developmental Biology Lab</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Experimental manipulation of embryos to examine</td>
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<td>mechanisms of early development, including</td>
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<td>gametogenesis and fertilization, cleavage,</td>
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<td>gastrulation, pattern formation and organogenesis</td>
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<td>in vivo imaging of development, methods to</td>
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<td></td>
<td>visualize gene expression and independent research</td>
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<td>model organisms including sea urchin, fish, frog,</td>
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<td>chick, mouse. Prerequisites: 002:104 and 002:128,</td>
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<td></td>
<td>or consent of instructor.</td>
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<tr>
<td>002:136</td>
<td><strong>Conservation Biology</strong></td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Definition and measurement of biodiversity,</td>
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<td>causes of biodiversity loss; conservation</td>
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<td>biology of populations, habitats, and ecosystems;</td>
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<td>practical application of conservation principles,</td>
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<td>value of biodiversity; field projects to develop</td>
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<td></td>
<td>skill in assessing and measuring important</td>
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<td>characteristics of natural areas, and in creating</td>
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<td>and presenting management plans. Prerequisites:</td>
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<td></td>
<td>002:010, 002:011, and 002:134; or consent of</td>
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<td></td>
<td>instructor.</td>
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<td>002:138</td>
<td><strong>Genetics and Biotechnology Lab</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Expansion of genetic concepts introduced in</td>
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<td>002:128; introduction to genetic/molecular</td>
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<td></td>
<td>techniques currently used in genetic analysis</td>
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<td></td>
<td>and biotechnology. Prerequisite: 002:128.</td>
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<tr>
<td>002:140</td>
<td><strong>Systematics: Classifying Biodiversity</strong></td>
<td>3 s.h.</td>
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<tr>
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<td>Nature of species, isolating mechanisms,</td>
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<td>hybridization; problems of convergence,</td>
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<td>homology; plant mating systems; types of</td>
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<td>information used in making taxonomic decisions.</td>
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<td>Prerequisite: 002:001, or 002:010 and 002:011, or</td>
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<td></td>
<td>equivalents.</td>
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<tr>
<td>002:143</td>
<td><strong>Animal Behavior</strong></td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Genetics, sensory physiology, migration,</td>
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<td>development of behavior, circadian rhythms,</td>
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<td>foraging strategies, aggression, sexual and</td>
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<td>parental behavior, group selection, social</td>
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<td></td>
<td>behavior. Prerequisites: 002:010 and 002:011.</td>
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</tbody>
</table>
002:145 Introduction to Neurobiology
Techniques of molecular biology, genomics, neuropharmacology, and functional brain imaging applied to understanding how the brain works. Prerequisites: 002:010 and 002:011.

002:148 Field Ecology
Correlation of vegetation, environmental factors; delineation of plant communities, populations; population dynamics, analysis of field data; methods for describing ecological phenomena in quantitative terms; statistics. Prerequisite: 002:134 or consent of instructor.

002:150 Endocrinology
Glands of internal secretion; emphasis on vertebrate systems; actions of hormones in regulating growth and metabolism, organ to molecular levels. Prerequisites: 002:010 and 002:011, or equivalents. Recommended: 004:121.

002:155 Cell Physiology
Functions common to all cells: metabolism and its control, cellular energetics, membranes and transport, excitation, signal transduction, synthesis of proteins in cells and organelles, expression of genetic information, cell cycle, movement, architecture; lecture, discussion. Prerequisites: 002:128, and 099:110 or 099:120, and 22M:016 or 22M:025 or 22M:031, and 029:011 or 029:081; or consent of instructor. Pre- or corequisite: 029:012 or 029:082.

002:160 Molecular Phylogenetics
Theory underlying phylogenetic analysis with application of these methods to molecular data sets; analysis of multigene data, organellar, and nuclear genome sequences to reconstruct the history of cells. Prerequisite: grade of C- or higher in 002:131 or graduate standing or consent of instructor.

002:162 Population Genetics and Molecular Evolution
Nucleotide sequences, genes, and mutation; rates and patterns of nucleotide substitution; selection at the molecular level and the neutral theory; population genetics theory; genome evolution. Prerequisite: grade of C- or higher in 002:131 or graduate standing or consent of instructor.

002:166 Genes and Development
Mechanisms by which genes control development of multicellular animals; methodology of scientific research applied to developmental genetics. Prerequisites: grade of B or higher in 002:128 or equivalent, and consent of instructor. Recommended: 002:104.

002:169 Introduction to Bioinformatics
Basics of genetics and molecular biology; overview of bioinformatics and genome science, including genome projects, functional genomics, phylogenetics, proteomics, microarrays, DNA polymorphisms, data-mining algorithms; experimental methods, analytical approaches. Prerequisite: 002:128 or 099:120 or graduate standing or consent of instructor. Same as 051:121, 055:121.

002:170 Bioinformatics
Overview of bioinformatics and genomics; requires working knowledge of basic concepts in genetics and molecular biology. Prerequisite: (for 002:170) grade of B+ or higher in 002:128 or consent of instructor. Prerequisites: (for 127:170) working knowledge of basic genetics and molecular biology concepts and grade of B+ or higher in 002:128, or consent of instructor. Same as 127:170.

002:171 Molecular Genetics
Mechanism, regulation of RNA, DNA, protein biosynthesis, with emphasis on methods of genetic analysis; application of modern recombinant DNA techniques to basic problems. Prerequisite: 002:128 or 099:120 or first-year graduate standing.

002:174 Computational Genomics
Same as 051:122, 055:122, 127:173.

002:176 Microarray Data Analysis
Basic statistical principles and techniques used in bioinformatics, including analyzing microarray gene expression data. Offered spring semesters. Prerequisite: 22S:030 or 22S:101 or 171:161 or consent of instructor. Same as 127:176, 171:185.
<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>002:178</td>
<td>Genomics</td>
<td>3 s.h.</td>
<td>Major areas of genomics, including DNA and protein sequence analysis, structural diversity of whole genomes, microarray applications, proteomics; computer workshop experience in applying bioinformatics tools. Prerequisite: 002:128 or 099:120 or consent of instructor.</td>
</tr>
<tr>
<td>002:180</td>
<td>Fundamental Neurobiology</td>
<td>4 s.h.</td>
<td>Neuronal function, plasticity, and development at the molecular and cellular levels. Prerequisite: 002:145 or consent of instructor. Recommended: 002:114 and 099:110, or equivalents. Same as 132:180.</td>
</tr>
<tr>
<td>002:181</td>
<td>Neurophysiology</td>
<td>3-4 s.h.</td>
<td>Physiological properties of nerve cells, nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Prerequisites: 002:180, 22M:025 or equivalent, and 029:012 or 029:082; or consent of instructor. Same as 132:181.</td>
</tr>
<tr>
<td>002:184</td>
<td>Developmental Neurobiology</td>
<td>3 s.h.</td>
<td>Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisite: grade of B- or higher in 002:180, or graduate standing and consent of instructor. Same as 072:184, 132:184.</td>
</tr>
<tr>
<td>002:186</td>
<td>Neurobiology Laboratory</td>
<td>3 s.h.</td>
<td>Principles and practice of neurobiology research, including microscopy and imaging, cellular and molecular neurobiology, and electrophysiology. Prerequisites: 002:180 and consent of instructor.</td>
</tr>
<tr>
<td>002:190</td>
<td>Topics in Evolution and Ecology</td>
<td>1-2 s.h.</td>
<td>Prerequisite: grade of B- or higher in 002:131 or graduate standing or consent of instructor.</td>
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<tr>
<td>002:191</td>
<td>Topics in Molecular Genetics</td>
<td>1-2 s.h.</td>
<td>Prerequisite: grade of C+ or higher in 002:128 or graduate standing or consent of instructor.</td>
</tr>
<tr>
<td>002:192</td>
<td>Basic Biology of Human Disease</td>
<td>2 s.h.</td>
<td>Basic problems of infectious disease; selected viral, bacterial, and fungal pathogens, with emphasis on fungal pathogenesis; DNA fingerprinting; epidemiological study of disease dynamics. Prerequisites: 002:128 and consent of instructor.</td>
</tr>
<tr>
<td>002:193</td>
<td>Cell Motility and Cytoskeleton</td>
<td>1-3 s.h.</td>
<td>Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>002:194</td>
<td>Topics in Cell and Development</td>
<td>1-2 s.h.</td>
<td>Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>002:195</td>
<td>Topics in Neurobiology</td>
<td>1-2 s.h.</td>
<td>Topics vary. Prerequisites: 002:180 and consent of instructor.</td>
</tr>
<tr>
<td>002:196</td>
<td>Honors Investigations</td>
<td>arr.</td>
<td>Experimental and theoretical research, readings in biological sciences. Prerequisite: honors standing or consent of instructor.</td>
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<tr>
<td>002:198</td>
<td>Honors Seminar in Biology</td>
<td>2 s.h.</td>
<td>Prerequisite: honors standing or consent of instructor.</td>
</tr>
<tr>
<td>002:199</td>
<td>Introduction to Research</td>
<td>3 s.h.</td>
<td>Prerequisite: consent of instructor.</td>
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**Primarily for Graduate Students**

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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>002:200</td>
<td>Biology Colloquium</td>
<td>0-2 s.h.</td>
<td>Repeatable. Prerequisite: first-year biology graduate standing.</td>
</tr>
</tbody>
</table>
002:207 Research Method and Theory  
Materials and methods of scientific investigation; lab techniques; library resources usage, NCBI data base training; lab safety; research ethics; reading, writing, presenting scientific papers. Prerequisite: new graduate student in the biology program.

002:215 Critical Readings in Biology  
Prerequisite: consent of instructor.

002:220 Advanced Microscopy Biomedical Research  
Technically advanced microscopy methods for research; individualized laboratory experience with opportunity to explore application of microscopy methods. Prerequisites: (for 060:220) an introductory microscopy course and consent of instructor. Prerequisites: (for 002:220) 002:218 or 060:218 or 061:218, or 012:156 or 052:156 or 060:156 or equivalent, and consent of instructor. Prerequisites: (for 061:220) an introductory EM course and consent of instructor. Same as 060:220, 061:220.

002:228 Fundamental Genetics--Graduate  

002:234 Seminar: Writing in Natural Sciences  
Writing and critiquing skills in the natural sciences. Prerequisite: consent of instructor.

002:265 Neuroscience Seminar  
Research presentations. Offered fall and spring semesters. Prerequisite: consent of instructor. Same as 031:265, 060:265, 072:265, 132:265.

002:270 Biosciences Critical Thinking and Communication  
Selected papers and oral and written presentations tied to students' research rotations; introductory seminar. Repeatable. Prerequisite: consent of instructor. Same as 072:342, 156:265.

002:280 Fundamental Neurobiology--Graduate  
Overview of neuroscience; emphasis on cellular level.

002:301 Research: Biology  
Repeatable.

002:303 Independent Study in Biology  
Repeatable. Prerequisite: consent of instructor.
Chemistry

Chair: David F. Wiemer
Professors: Mark A. Arnold (Edwin B. Green Chair in Laser-Chemistry), Lei Geng, James B. Gloer (Ralph L. Shriner-Roy J. Carver Professor), Vicki H. Grassian (Chemistry/Chemical and Biochemical Engineering), Sarah C. Larsen, Norbert J. Pienta, Daniel M. Quinn, Gary W. Small, David F. Wiemer (Chemistry/Pharmacology)
Professors emeriti: Norman C. Baenziger, Donald J. Burton, E. David Cater, Robert E. Coffman, Leodis Davis, John R. Doyle, H. Bruce Friedrich, Harold M. Goff, Vasu Nair, Donald J. Pietrzyk, Dwight C. Tardy
Assistant professors: Ned Bowden, Chris Cheatum, Amanda J. Haes, Jan-Uwe Rohde, Alexei V. Tivanski
Lecturers: Russell G. Larson, Mona A. Maalouf, Amy E. Strathman
Undergraduate degrees: B.A., B.S. in Chemistry
Graduate degrees: M.S., Ph.D. in Chemistry
Web site: http://www.chem.uiowa.edu/

Undergraduate Programs

The Department of Chemistry offers a Bachelor of Arts, a Bachelor of Science, and a minor in chemistry. An undergraduate degree in chemistry provides a strong foundation for success in graduate and professional study and for positions in academic or industrial chemistry.

Bachelor of Science

The Bachelor of Science in chemistry requires a minimum of 120 s.h., including 68 s.h. of work for the major, with 46 s.h. in chemistry courses. Students earn 17 s.h. in five foundation chemistry courses and 29 s.h. in advanced chemistry courses. They must earn at least 20 s.h. in advanced chemistry courses at The University of Iowa.

The five foundation courses are principles of chemistry I-II, organic chemistry I-II, and organic chemistry lab. All subsequent chemistry courses are built on the foundation courses.

Students must complete the College of Liberal Arts and Sciences General Education Program.

The B.S. program is certified by the American Chemical Society. Current and projected demand for Bachelor of Science graduates in chemistry is excellent in research and in control and process-development work. The program also provides all the prerequisites for graduate work in chemistry or biochemistry and in other biomedical areas with a molecular focus.

Courses in the chemistry major have prerequisites, so they must be taken in the correct order. Most advanced courses are taught only once a year. Students should plan carefully, in consultation with their academic advisors. They should take 004:021 Basic Measurement during the first semester of the second year.

The B.S. requires the following course work.

Chemistry

One of these sequences:

004:011-004:012 Principles of Chemistry I-II 8 s.h.
004:018-004:019-004:020 Chemical Science I-II - Chemical Science Laboratory 8 s.h.

One of these sequences:

004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I for Majors - Organic Chemistry II for Majors (preferred) 6 s.h.

One of these:

004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

All of these:

004:021 Basic Measurement (first semester of second year) 3 s.h.
004:111-004:112 Analytical Chemistry I-II 6 s.h.
004:125 Inorganic Chemistry 2 s.h.
004:131-004:132 Physical Chemistry I-II 6 s.h.
004:143 Analytical Measurements 3 s.h.
SCIENCES ELECTIVES AND RESEARCH

Students must earn a total of at least 6 s.h. in advanced science elective courses and in 004:162 Undergraduate Research. A partial list of courses that satisfy the chemistry elective requirement is available on the department’s web site (see Undergraduate Program/Degrees). Generally, advanced courses in related science disciplines beyond the introductory level and math-related courses with a prerequisite of calculus II or equivalent are accepted. Students should consult their advisors to gain approval for a course that is not on the list.

Bachelor of Arts

The Bachelor of Arts in chemistry requires a minimum of 120 s.h., including 53 s.h. of work for the major, with 37 s.h. in chemistry courses. Students earn 17 s.h. in five foundation chemistry courses and 20 s.h. in advanced chemistry courses. They must earn at least 11 s.h. in advanced chemistry courses at The University of Iowa.

The five foundation courses are principles of chemistry I-II, organic chemistry I-II, and organic chemistry lab. All subsequent chemistry courses are built on the foundation courses.

The B.A. program in chemistry provides a more general education, with a concentration in fundamental chemistry and a wider choice of electives than the B.S. program includes. Advanced courses in chemistry, biology, mathematics, physics, or other scientific areas are recommended.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Bachelor of Arts graduates in chemistry may qualify to be high school teachers, provided they meet teacher licensure requirements. By choosing appropriate electives, students can meet entrance requirements for chemistry, biochemistry, medicine, dentistry, or other graduate or professional programs while satisfying the B.A. requirements in chemistry. Graduates also may pursue careers and education in business, law, and other areas.

Courses in the chemistry major have prerequisites, so they must be taken in the correct order. Most advanced courses are taught only once a year. Students should plan carefully, in consultation with their academic advisors. Students should take 004:021 Basic Measurement during the first semester of the second year.

The B.A. requires the following course work.

Chemistry

One of these sequences:

004:011-004:012 Principles of Chemistry I-II
004:018-004:019-004:020 Chemical Science I-II - Chemical Science Laboratory

One of these sequences:

004:121-004:122 Organic Chemistry I-II
6 s.h.

One of these:
004:141 Organic Chemistry Laboratory  
3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred)  
3 s.h.

One of these:
004:143 Analytical Measurements  
3 s.h.
004:144 Physical Measurements  
3 s.h.
004:153 Inorganic Chemistry Laboratory  
3 s.h.

All of these:
004:021 Basic Measurement (first semester of second year)  
3 s.h.
004:111-004:112 Analytical Chemistry I-II  
6 s.h.
004:125 Inorganic Chemistry  
2 s.h.
004:131-004:132 Physical Chemistry I-II  
6 s.h.

Integral Calculus

One of these sequences:
22M:025-22M:026 Calculus I-II (preferred)  
8 s.h.
8 s.h.

Introductory Physics

One of these sequences:
029:011-029:012 College Physics I-II  
8 s.h.
029:081-029:082 Introductory Physics I-II (preferred)  
8 s.h.

B.A. or B.S. with Teaching Licensure

Chemistry courses required for the B.S. or B.A. satisfy the major requirements for teaching in secondary schools. A minor in chemistry satisfies the requirements for a teaching emphasis in chemistry (see Science Education in the Catalog).

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Courses in the chemistry major have prerequisites. Students must take required courses in the correct sequence in order to satisfy prerequisites and avoid regression; a typical chemistry course schedule and a regression list are available on the department's web site (see Undergraduate Program/Degrees). Most advanced courses are taught only once a year. Students should plan carefully, in consultation with their academic advisors. They should take 004:021 Basic Measurement during the first semester of the second year.

Bachelor of Arts

Before the third semester begins: math through calculus I, 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II or 004:018 Chemical Science I, 004:019 Chemical Science II, and 004:020 Chemical Science Laboratory or equivalent course work, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above; calculus II; organic chemistry I, II, and lab; physics I and II; and at least one-half of the semester hours required for graduation
Before the seventh semester begins: the courses listed above, four more courses in the major, and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: the courses listed above, and one or two more courses in the major.

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate.

Bachelor of Science

Before the third semester begins: math through calculus I, 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II or 004:018 Chemical Science I, 004:019 Chemical Science II, and 004:020 Chemical Science Laboratory or equivalent course work, and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: the courses listed above; calculus II; physics I and II; organic chemistry I, II, and lab; three other courses in the major; and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: the courses listed above, six more courses in the major, and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: the courses listed above, and three more courses in the major.

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate.

Honors

To graduate with honors in chemistry, a student must be a member of the University Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Honors students in chemistry must take 004:162 Undergraduate Research, complete a research project acceptable to their research advisors, and write an honors thesis based on that research. Students are encouraged, but not required, to present their research at local and regional meetings and to publish their results in professional journals. Students who complete 6 s.h. of 004:162 Undergraduate Research may earn additional honors research credit through an honors practicum.

Minor

The minor in chemistry requires a minimum of 15 s.h. in courses offered by the Department of Chemistry at The University of Iowa, including 12 s.h. in advanced courses. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Advanced courses are numbered above 100 and below 280, except 004:162 Undergraduate Research and 004:191 Graduate Chemistry Orientation. Students normally complete the minor by taking the introductory sequence 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II (or 004:018 Chemical Science I, 004:019 Chemical Science II, and 004:020 Chemical Science Laboratory) followed by the 12 s.h. of advanced course work, which most commonly consists of the organic chemistry sequence 004:121 Organic Chemistry I, 004:122 Organic Chemistry II, and 004:141 Organic Chemistry Laboratory (or 004:123 Organic Chemistry I for Majors, 004:124 Organic Chemistry II for Majors, and 004:142 Organic Chemistry Laboratory for Majors) plus one more 3 s.h. chemistry course, such as 004:111 Analytical Chemistry I, 004:131 Physical Chemistry I, 004:132 Physical Chemistry II, 004:170 Advanced Inorganic Chemistry, or 004:172 Advanced Organic Chemistry.

Resources, Activities

The department offers undergraduate students majoring in chemistry and other students interested in chemistry a number of opportunities to enrich their classroom studies.

Undergraduate Chemistry Center

The Chemistry Center serves all students who take chemistry courses as well as the department's professors and teaching assistants. The center maintains waiting lists and offers other assistance with registration; returns examinations and homework assignments and maintains a file of lecture hand-outs; provides a lending library of chemistry textbooks that can be checked out; and maintains bulletin boards with information on all lower-level chemistry courses. Information about student organizations and departmental scholarships and awards also is available at the Chemistry Center.

Student Organizations

Students may join the Undergraduate Chemical Society, a student affiliate of the American Chemical Society (ACS). Chapter activities include dinner meetings with guest speakers; a chemistry tutoring service for other students;
participation in local and national meetings of the ACS; and participation in chemistry outreach programs. Students in UCS develop leadership, organization, and speaking skills valuable throughout their college experience and in their subsequent careers.

The department has a chapter of Alpha Chi Sigma, a co-ed chemistry fraternity. The Alpha Theta Chapter is open to students in chemistry, biochemistry, chemical engineering, and related fields. Alpha Chi Sigma sponsors many social and professional events throughout the year.

The department also supports the activities of Women in Science and Engineering (WISE), whose aim is to increase women's participation and advancement as students, faculty members, and professional staff; promote a supportive study and work environment for women; integrate women's ideas, strengths, and approaches into research, teaching, and service; and inform the public of educational and career opportunities for women in scientific and technical fields. WISE sponsors a living-learning community in Stanley Hall (a University residence hall) for first-year female students majoring in science or engineering, the Student-to-Student Support in Science mentoring program, a service learning program, and the WISE Discourse and Dining series.

Scholarships and Awards

A number of awards and scholarships are available to chemistry majors, including the American Institute of Chemists Award, the Undergraduate Award in Analytical Chemistry, the Chemistry Alumni Awards (one each for a sophomore, a junior, and a senior), the Merck Index Award, and the Viksnins, Harris & Padys PLLP Award.

Chemistry majors also may apply for the Donald J. and Margaret Burton Scholarship, Ken Sando Scholarship, Shoemaker-Strickler Scholarship, and Russell K. Simms Scholarship.

Graduate Programs

The department offers a Master of Science, with and without thesis, and a Doctor of Philosophy in chemistry.

Master of Science

The Master of Science in chemistry requires a minimum of 30 s.h. of graduate credit. The degree is offered with or without thesis, in analytical, inorganic, organic, and physical chemistry. M.S. students must demonstrate minimal proficiency in analytical, inorganic, organic, and physical chemistry by passing specific examinations or by enrolling in suitable core courses. This requirement must be completed by the end of the second year of enrollment. A g.p.a. of at least 3.00 is required for admission to the master's examination.

Doctor of Philosophy

The Doctor of Philosophy in chemistry requires a minimum of 72 s.h. of graduate credit. Ph.D. study in analytical, inorganic, organic, and physical chemistry includes minimal proficiency examinations, core courses as necessary, a minimum of 11 s.h. of advanced course work, and research.

Students who meet the course requirements with a cumulative g.p.a. of 3.00 or higher are admitted to the oral comprehensive examination upon presentation and preliminary approval of their written research proposal and research progress report; they must take the oral comprehensive examination no later than the end of their second year of enrollment.

Upon completing Ph.D. research, candidates prepare the dissertation. The final examination consists of an oral defense of the thesis, at which time the candidate presents at least one manuscript of the publishable portion of his or her thesis.

Admission

Applicants for graduate admission should have a bachelor's degree in chemistry, preferably with a g.p.a. of 3.00 or higher. Most admitted graduate students receive financial support. For application information, contact the Department of Chemistry or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Facilities

The Department of Chemistry office, support facilities, and faculty offices are located in the Chemistry Building, as is laboratory and classroom space dedicated to teaching and research activities. Several faculty members have offices and laboratories in the Iowa Advanced Technology Laboratories, across the street from the Chemistry Building. See
the Department of Chemistry web site for information about facilities and advanced instrumentation available for instruction and research.

**Chemistry Courses**

**Primarily for Undergraduates**

Students planning to take more than one year of chemistry should take 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II. Students who require only one year of chemistry with no laboratory component may take 004:007 General Chemistry I and 004:008 General Chemistry II. Students who have not had high school chemistry or do not have strong math and/or chemistry preparation should consider taking 004:007 General Chemistry I before 004:011 Principles of Chemistry I; academic advisors and the Chemistry Diagnostic Test can help students determine whether to take 004:007 General Chemistry I before 004:011 Principles of Chemistry I.

**004:004 Secondary Student Training Program**
3-4 s.h.
Special projects. Prerequisite: secondary school enrollment.

**004:005 Technology and Society**
3 s.h.
Nonmathematical exploration of selected areas of technology; basic science background, current technological applications, implications for society; for nonscience majors. Prerequisite: closed to students who have taken college chemistry courses. GE: Natural Sciences.

**004:006 Technology and Society Laboratory**
1 s.h.
Laboratory for 004:005; demonstrations, student experiments. Prerequisite: closed to students who have earned more than 3 s.h. in chemistry courses. Pre- or corequisite: 004:005. GE: Natural Sciences.

**004:007 General Chemistry I**
3 s.h.
Atomic structure, chemical bonds, mole relations, stoichiometry, states of matter, acids and bases, reaction rates, electrochemistry, nuclear chemistry. Prerequisite: elementary algebra. GE: Natural Sciences.

**004:008 General Chemistry II**
3 s.h.
Organic chemistry and biochemistry. Prerequisite: 004:007 or high school chemistry. GE: Natural Sciences.

**004:009 Supplemental Chemistry Lab**
1 s.h.
Lab techniques, elementary synthesis, measurement, analysis, case-study lectures and experiments; safety glasses, appropriate dress, compliance with laboratory safety protocols required. Prerequisite: grade of C or higher in 004:018 or 004:019 or consent of instructor.

**004:011 Principles of Chemistry I**
4 s.h.
Chemical bonding and chemical reactions; atomic and molecular structure, chemical equations, stoichiometry, gases, liquids, thermodynamics of phase changes, solutions, equilibrium, acids, bases, pH, elementary organic chemistry; the solid state, including modern materials; lecture, discussion, laboratory. Prerequisite: 22M:002, or ACT math subscore of 24 and MPT II score of 20, or ACT math subscore of 24 and MPT III score of 10. Recommended: Chemistry Diagnostic Test score of 15. GE: Natural Sciences.

**004:012 Principles of Chemistry II**
4 s.h.
Continuation of 004:011; colligative properties of solutions, chemical thermodynamics, electrochemistry, chemical kinetics, chemical bonding, aspects of industrial chemistry, nuclear chemistry; lecture, discussion, laboratory. Prerequisite: 004:011. GE: Natural Sciences.

**004:016 Principles of Chemistry Lab**
2 s.h.
Laboratory techniques. Prerequisites: grades of C or higher in 004:018 and 004:019. GE: Natural Sciences.

**004:018 Chemical Science I**
3 s.h.
GE: Natural Sciences.

**004:019 Chemical Science II**
3 s.h.
GE: Natural Sciences.

**004:020 Chemical Science Laboratory**
2 s.h.
### GE: Natural Sciences

**004:021 Basic Measurement**  
Continuation of 004:012; techniques of data collection and processing, including titrimetric and instrumental techniques for data collection and computer techniques for data processing. Prerequisites: 004:012 or 004:020, and chemistry major.

**004:029 First-Year Seminar**  
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**004:111 Analytical Chemistry I**  
Modern theory and practice; emphasis on chemical equilibria (acid-base chemistry, solubility, complexation) and electroanalytical chemistry (potentiometry, voltammetry, coulometry). Pre- or corequisite: 004:131 or 004:132 or consent of instructor.

**004:112 Analytical Chemistry II**  
Continuation of 004:111; emphasis on instrumental methods, including atomic and molecular spectroscopy, mass spectrometry, chemical separations. Prerequisite: 004:111.

**004:121 Organic Chemistry I**  
Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alkynes, alcohols, alkyl halides, aromatics. Prerequisite: 004:012 or 004:019.

**004:122 Organic Chemistry II**  
Continuation of 004:121; use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, nucleosides. Prerequisite: 004:121.

**004:123 Organic Chemistry I for Majors**  
Carbon-containing compounds; structure, stereochemistry, physical properties, reactivity, reaction mechanisms, synthesis; emphasis on alkanes, alkenes, alkynes, alcohols, alkyl halides, aromatics. Prerequisites: 004:012 or 004:019; and chemistry, biochemistry, or chemical engineering major.

**004:124 Organic Chemistry II for Majors**  
Continuation of 004:123; use of spectroscopic techniques to determine chemical structures; chemistry of carbonyl compounds, amines, ethers, amino acids, carbohydrates, and nucleosides. Prerequisites: 004:121 or 004:123; and chemistry, biochemistry, or chemical engineering major.

**004:125 Inorganic Chemistry**  
Modern principles; emphasis on descriptive chemistry of the main group and transition elements, ionic and covalent chemical bonding theories, symmetry, inorganic stereochemistry. Prerequisite: 004:012 or 004:019. Corequisite: 004:122 or 004:124.

**004:131 Physical Chemistry I**  
Chemical thermodynamics and its application to chemical equilibrium, phase changes and chemical equilibria; ideal and real gases; kinetic theory; surface absorption and electrochemistry; thermodynamics. Prerequisites: 004:012 or 004:019, and 029:012 or 029:082, and 22M:026 or equivalent.

**004:132 Physical Chemistry II**  
Quantum mechanics and its application to atomic and molecular structure; determination of structure and bonding by various spectroscopic methods; chemical kinetics. Prerequisites: 004:012 or 004:019, and 029:012 or 029:082, and 22M:026 or equivalent.

**004:141 Organic Chemistry Laboratory**  
Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: 004:011 and 004:012, or 004:016 or 004:020; and 004:121 or 004:123. Corequisite: 004:122 or 004:124.

**004:142 Organic Chemistry Laboratory for Majors**  
3 s.h.
Preparation, purification, identification, analysis of chemical compounds, principally organic compounds. Prerequisites: 004:011 and 004:012, or 004:016 or 004:020; 004:121 or 004:123; and chemistry, biochemistry, or chemical engineering major. Corequisite: 004:124.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>004:143</td>
<td>Analytical Measurements</td>
<td>3 s.h.</td>
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<td></td>
<td>Modern theory and practice of laboratory methods;</td>
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<td>emphasis on experimental techniques and data</td>
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<td>analysis in spectroscopy, chromatography,</td>
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<td>electrochemistry. Prerequisite: 004:111.</td>
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<td>Corequisite: 004:112.</td>
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<td>004:144</td>
<td>Physical Measurements</td>
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<td>Laboratory experience using advanced instrumental</td>
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<td>and computational methods to generate and analyze</td>
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<td>data relevant to modern physical chemistry.</td>
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<td>Prerequisites: 004:021 and chemistry major.</td>
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<td>Pre- or corequisite: 004:131 or 004:132.</td>
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<td>004:153</td>
<td>Inorganic Chemistry Laboratory</td>
<td>3 s.h.</td>
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<td></td>
<td>Preparation and characterization of a variety of</td>
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<td>inorganic, organometallic, and coordination</td>
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<td>compounds of the main group and transition</td>
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<td>elements; emphasis on synthetic techniques,</td>
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<td>methods for characterization of inorganic</td>
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<td>species. Prerequisites: 004:125, and 004:141 or</td>
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<td>004:142; or consent of instructor.</td>
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<td>004:162</td>
<td>Undergraduate Research</td>
<td>1-4 s.h.</td>
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<td>Prerequisite: consent of advisor.</td>
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<td>004:170</td>
<td>Advanced Inorganic Chemistry</td>
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<td>Modern principles, including crystal field/</td>
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<td>reaction mechanisms, coordination chemistry,</td>
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<td>bioinorganic chemistry, main group and</td>
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<td>transition metal organometallic chemistry,</td>
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<td>solid-state inorganic chemistry. Prerequisites:</td>
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<td>Pre- or corequisite: 004:153.</td>
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<td>004:171</td>
<td>Advanced Analytical Chemistry</td>
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<td>Emphasis on fundamental aspects of</td>
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<td>electrochemistry, atomic and molecular</td>
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<td>spectroscopy, chemical separations. Prerequisites</td>
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<td>004:172</td>
<td>Advanced Organic Chemistry</td>
<td>3 s.h.</td>
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<td>Basic concepts from perspectives of</td>
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<td>structure, mechanism, synthesis, stereochemistry</td>
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<td>Prerequisite: 004:122 or 004:124.</td>
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<td>004:173</td>
<td>Atmospheric and Environmental Chemistry</td>
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<td>Fundamental chemical processes of importance in</td>
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<td>the atmosphere, soil, and water, with emphasis</td>
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<td>experimental methods in field and laboratory</td>
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<td>studies. Pre- or corequisite: 004:131 or 004:132</td>
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<td>004:175</td>
<td>Introduction to Polymer Chemistry</td>
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<td>Synthesis, structures, characterization,</td>
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<td>properties, and applications of polymers.</td>
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<tr>
<td></td>
<td>Prerequisites: 004:122 and 004:125.</td>
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<tr>
<td>004:191</td>
<td>Graduate Chemistry Orientation</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Pedagogy, safety and research issues relevant</td>
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<tr>
<td></td>
<td>to advanced chemistry careers. Prerequisite:</td>
<td></td>
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<tr>
<td></td>
<td>senior standing.</td>
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</table>

**Primarily for Graduate Students**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>004:201</td>
<td>Special Topics in Inorganic Chemistry</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Repeatable. Prerequisite: 004:170.</td>
<td></td>
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<tr>
<td>004:202</td>
<td>Coordination Chemistry and Spectroscopy</td>
<td>1-3 s.h.</td>
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<tr>
<td></td>
<td>Structure and bonding of d-block metal complexes,</td>
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<tr>
<td></td>
<td>theory and application of relevant spectroscopic</td>
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<td></td>
<td>methods, inorganic reaction mechanisms,</td>
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<tr>
<td></td>
<td>transition metals in catalysis. Prerequisite:</td>
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<tr>
<td></td>
<td>004:170.</td>
<td></td>
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<tr>
<td>004:203</td>
<td>Organometallic Chemistry</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Emphasis on organometallic compounds of</td>
<td></td>
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<tr>
<td></td>
<td>transition metal elements. Prerequisite: 004:170.</td>
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<tr>
<td>004:204</td>
<td>Physical Methods in Inorganic Chemistry</td>
<td>3 s.h.</td>
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</table>
Application of physical methods to problems; recent developments; emphasis on magnetic resonance spectroscopy. Prerequisite: 004:170.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</table>
| 004:205     | Bioinorganic Chemistry                           | 2-3 s.h.
|             | The role of metal ions in biology from an inorganic chemical perspective; emphasis on structure and mechanism for transition metal-containing metallo-enzymes. Prerequisite: 004:170 or equivalent. |
| 004:206     | Solid-State and Materials Chemistry              | 3 s.h.  |
|             | Introduction to the chemical concepts of solid-state chemistry; focus on synthesis and characterization of various inorganic materials; structure/property relationships, real-world examples. Prerequisite: 004:170 or equivalent. |
| 004:207     | Electrochemistry                                  | 2-3 s.h.
|             | Fundamental aspects, including mass transport and electron transfer, electrochemical methodology (e.g., voltammetry and potentiometry), determination of homogeneous and heterogeneous reaction mechanisms. Prerequisites: 004:111, 004:112, and 004:171. |
| 004:208     | Spectroscopy                                     | 3 s.h.  |
|             | Principles of atomic and molecular absorption and emission spectroscopy in ultraviolet, visible, and infrared regions of the spectrum, including fluorescence, phosphorescence, Raman spectroscopy; applications to analytical problems, with emphasis on modern instrumentation and methodology. Prerequisites: 004:111, 004:112, and 004:171. |
| 004:209     | Separations                                       | 3 s.h.  |
|             | Separation science; emphasis on gas and liquid chromatography, including mobile and stationary phases, instrumentation, detection, applications and sheet method, supercritical fluid chromatography, capillary electrophoresis, solid phase extraction techniques. Prerequisites: 004:111, 004:112, and 004:171. |
| 004:210     | Chemical Sensors                                 | 2 s.h.  |
|             | Theory, practical limitations, analytical utility based on immobilized reagents with electrochemical, thermal, optical transduction mechanisms. Prerequisites: 004:111 and 004:112, or 004:171. |
| 004:213     | Special Topics in Analytical Chemistry           | arr.    |
|             | Content varies. Repeatable.                     |         |
| 004:214     | Chemical Systems Modeling                        | 2 s.h.  |
|             | Basic processes and techniques; these methods applied to systems relevant to students' own research. Prerequisite: 004:111 or 004:112 or 004:171 or equivalent. |
| 004:215     | Biophotonics                                      | 3 s.h.  |
|             | Structure, dynamics of biomolecules and their optical spectroscopy; ultrasensitive fluorescence spectroscopy, vibrational spectroscopy, optical activity and circular dichroism, time-resolved spectroscopy. Prerequisites: 004:111, 004:112, and 004:171. |
| 004:220     | Electrochemistry of Polymer Films                | 1 s.h.  |
|             | Use of electrochemical methods to characterize polymer and thin films; transport through polymer films and composites, electrochemistry of polymer films. Prerequisite: physical chemistry course. |
| 004:221     | Spectroscopic Methods in Organic Chemistry       | 3-4 s.h.|
|             | Methods and techniques of structure determination for organic compounds. Prerequisite: 004:172 or equivalent. |
| 004:225     | Organic Chemistry Special Topics                 | 1-3 s.h.|
|             | Prerequisite: 004:172 or equivalent.             |
| 004:228     | Mechanisms of Organic Reactions                  | 3 s.h.  |
|             | Application of basic mechanistic concepts.        |
| 004:229     | Advanced Organic Synthesis                       | 3 s.h.  |
|             | Preparation of complex organic compounds. Prerequisite: 004:172. |
| 004:231     | Statistical Thermodynamics I                     | 3 s.h.  |
Fundamentals of classical thermodynamics and equilibria; ensembles; noninteracting systems; theory of phase transitions; Monte-Carlo methods; classical fluids; nonequilibrium systems. Prerequisite: 004:131.

004:233 Quantum and Computational Chemistry
Fundamental principles of quantum chemistry; angular momentum; approximation methods; theory of atomic and molecular electronic structure; applications of computational quantum mechanics to chemical systems. Pre- or corequisite: 004:132. Recommended: 004:180.

004:234 Molecular Spectroscopy
Quantum mechanical theory of molecular spectroscopy; time-dependent perturbation theory, selection rules, lineshapes; selected applications in microwave, vibrational (infrared and Raman), electronic, optical, and magnetic resonance spectroscopy. Prerequisite: 004:233.

004:235 Chemical Kinetics
Potential energy surfaces, transition state theory, diffusion limited rates, linear free energy relationships, isotope effects, solvent effects, RRKM theory; connection between experiment and various theories in the gas and solution phases; emphasis on assignment of experimental error to derived quantities. Prerequisite: 004:132.

004:238 Surface Chemistry and Heterogeneous Processes
Fundamental and applied aspects of surface chemical processes; theories of molecular adsorption/desorption and surface complexation; kinetics; surface analysis and instrumentation; applications of surface chemistry in heterogeneous catalysis, heterogeneous environmental/atmospheric processes, and materials chemistry. Repeatable. Prerequisite: 004:131 or consent of instructor.

004:242 Physical Chemistry Topics
Advanced topics relevant to modern physical chemistry. Repeatable.

004:250 Chemometrics
Mathematical, statistical, and signal processing methods for analytical chemistry; hypothesis testing, experimental design, model building, optimization, digital filtering. Prerequisite: 004:171.

004:275 Perspectives in Biocatalysis

004:281 Seminar: Analytical Chemistry
Repeatable. Prerequisite: consent of instructor.

004:283 Seminar: Inorganic Chemistry
Repeatable. Prerequisite: consent of instructor.

004:285 Seminar: Organic Chemistry
Repeatable. Prerequisite: consent of instructor.

004:286 Seminar: Physical and Environmental Chemistry
Repeatable. Prerequisite: consent of instructor.

004:287 Research Frontiers in Chemistry
Repeatable. Prerequisite: consent of instructor.

004:290 Research in Chemistry
Thesis work for advanced degrees. Repeatable. Prerequisites: consent of department head and advisor.

004:291 Research Seminar
Presentation and discussion of thesis research for advanced degrees. Repeatable.
The Department of Cinema and Comparative Literature presents film, literature, translation, and relations with the other arts as subjects of international and interdisciplinary study. It provides a basis for intensive work in literature, literary theory, critical methods, film studies, and the production of literary translations and film, video, and digital arts.

The department encourages study in comparative arts, with particular emphasis on cinema, where the program’s resources are especially strong. Students and faculty members have easy access to the resources of the International Writing Program and the Institute for Cinema and Culture.

The cinema and comparative literature faculty offers expertise in the languages and cultural study of the Americas, China, Croatia, England, France, Germany, India, Ireland, Italy, Japan, Russia, Spain, and Sub-Saharan Africa. Specific expertise and direction are available in translation and in film and audiovisual history, production, and theory.

In addition to its own faculty, the department calls on faculty members in other disciplines, including American studies, Asian and Slavic languages and literatures, classics, communication studies, English, French and Italian, German, history, Spanish and Portuguese, theatre arts, and women's studies.

### Undergraduate Programs

The Department of Cinema and Comparative Literature offers a Bachelor of Arts in cinema and a Bachelor of Arts in comparative literature. It also offers a minor in cinema and a minor in comparative literature.

The majors in cinema and in comparative literature provide individualized programs in the interdisciplinary study of literature and the study and production of film and audiovisual arts. The program is designed to promote cultural awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning.

**Bachelor of Arts in Cinema**

The Bachelor of Arts in cinema requires a minimum of 120 s.h., including 33 s.h. of work for the major. Students must complete 21 s.h. in University of Iowa course work and may count a maximum of 6 s.h. of course work from another major, minor, or certificate to the B.A. in cinema. All B.A. students must complete the College of Liberal Arts and Sciences General Education Program.

The major in cinema is an individualized, interdisciplinary study of film and the production of creative work in film, video, and interactive multimedia. It is designed to promote cultural and artistic awareness, to increase speaking and writing skills, and to develop capacities for systematic reasoning and effective production in cinema arts.

All students are expected to gain a perspective on both the study and the production of film, video, or digital media while becoming acquainted with the historical, critical, and theoretical issues of the area. In conjunction with an appropriate overall curriculum, the major in cinema can offer effective preparation for continuing study or creative work in the humanities, arts, and cinema; provide a solid foundation for careers in film, video, television, and digital production; and lead to careers in arts administration, advertising, and business.

The B.A. in cinema requires the following course work.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>048:001</td>
<td>Introduction to Film Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:025</td>
<td>Introduction to Critical Reading and Viewing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:034</td>
<td>Modes of Film and Video Production</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>048:095</td>
<td>Undergraduate Seminar</td>
<td>3 s.h.</td>
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One of these:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>048:030</td>
<td>Introduction to Film Theory</td>
<td>3 s.h.</td>
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</table>
Bachelor of Arts in Comparative Literature

The Bachelor of Arts in comparative literature requires a minimum of 120 s.h., including 33 s.h. of work for the major. Students must complete 21 s.h. in University of Iowa course work and may count a maximum of 6 s.h. of course work from another major, minor, or certificate to the B.A. in comparative literature. All B.A. students must complete the College of Liberal Arts and Sciences General Education Program.

The major offers two tracks: language and literature, and literature and arts. Students work with faculty advisors close to their track to develop coherent, individualized programs of study that reflect their interests and developing skills.

Students share a common set of basic courses in the literatures of widely divergent cultures and historical periods, in translation, and in interaction among the arts. All students are expected to gain an international perspective on literature and the arts, and to become acquainted with interdisciplinary approaches to cultural study.

The successful pursuit of comparative literature requires study of at least one foreign cultural tradition, with appropriate emphasis on language, literature, and the arts in historical context. Familiarity with the literatures and cultures of other nations goes hand-in-hand with theoretical inquiry and reflection on basic issues, such as the nature and value of storytelling in literature and other arts—for instance, film, song, and painting. Translation between languages and among different arts represents another basic center of theory and practice. Individual courses of study may extend into other disciplines, including history, philosophy, linguistics, anthropology, law, and psychology.

In conjunction with an appropriate overall curriculum, the major in comparative literature can offer effective preparation for professional studies in fields such as law and business, or for employment in fields that value critical thinking and international understanding. It also offers excellent preparation for graduate work in the humanities.

The B.A. in comparative literature requires the following course work.

COMMON COURSES

All students take these, for a total of 18 s.h.

048:025 Introduction to Critical Reading and Viewing 3 s.h.
048:040-048:041 Major Texts in World Literature I - Major Texts of World Literature II 6 s.h.
048:095 Undergraduate Seminar 3 s.h.
048:100 Introduction to Criticism and Theory 3 s.h.
Comparative literature elective(s) numbered above 048:050 3 s.h.

Tracks

Students take a total of 15 s.h. of work in one track.

FOREIGN LANGUAGE AND LITERATURE TRACK

To complete this track, students take 9 s.h. of courses in one foreign literature, read in the original language. One course in composition and conversation may count toward the major. (Language courses taken to complete the General Education Program may not be included.)

Students take an additional 6 s.h. of course work in cinema and comparative literature or a related area (e.g., English and American literature, film, linguistics, anthropology, philosophy, history) or in a second foreign literature.

LITERATURE AND ARTS TRACK

To complete this track, students take 12 s.h. of advanced work (100-level or above) in a single fine arts area. They may count one course in advanced performance, practice, or production toward the major, with consent of the director of undergraduate studies.

One additional 3 s.h. course must focus explicitly on arts and literature in comparative perspective.
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Cinema

Note: The major in cinema requires only one course in film, video, and digital production: 048:034 Modes of Film and Video Production. This is the only production course included in the assurances of the Four-Year Graduation Plan. More advanced courses in production may be used to complete the major, but admission to these courses is limited and depends on student achievement in prerequisite production courses.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major (including 048:001 Introduction to Film Analysis, and 048:025 Introduction to Critical Reading and Viewing or 048:034 Modes of Film and Video Production) and at least half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major (including 048:001 Introduction to Film Analysis, 048:025 Introduction to Critical Reading and Viewing, and 048:034 Modes of Film and Video Production), and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Comparative Literature

Note: Because the major in comparative literature may require competency in a language in which the student will take advanced work, the student may need to acquire this language competency through course work early in the plan. Such course work is not reflected in these checkpoints.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

To graduate with honors in cinema or comparative literature, students must be members of the University of Iowa Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). They must identify an area that extends beyond regularly offered course work and must complete a project in consultation with one or two faculty members, including the major advisor. Contact the Department of Cinema and Comparative Literature for details.

Minor in Cinema

The minor in cinema requires 15 s.h. of University of Iowa cinema courses, including at least 12 s.h. in courses numbered 048:051 and above. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students must choose courses with a primary emphasis in cinema. Contact the Department of Cinema and Comparative Literature for a list of approved courses.

Minor in Comparative Literature

The minor in comparative literature requires 15 s.h. of University of Iowa comparative literature courses, including at least 12 s.h. in courses numbered 048:040 and above. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students must choose courses with a primary emphasis in comparative literature. Contact the Department of Cinema and Comparative Literature for a list of approved courses.
Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in film studies; a Master of Arts and a Doctor of Philosophy in comparative literature; a Master of Fine Arts in film and video production; and a Master of Fine Arts in translation.

Master of Arts in Film Studies

The Master of Arts in film studies requires 36 s.h. of graduate credit. The focus is on film in an international context, with required distributions of course work in U.S. cinema, European cinema, world cinemas, and film production, documentary film, animation, or experimental film.

Students meet formal degree requirements with course work and a written examination on two areas, which the student selects from one list focusing on film theory and another list focusing on film history. Exams are offered annually in January.

Master of Arts in Comparative Literature

The Master of Arts in comparative literature requires 36 s.h. of graduate credit. The focus is on literature in an international context, with concentration on two or more national literatures and on the theory and study of literature in general. In consultation with faculty advisors, students combine courses in comparative literature and allied departments to design a coherent program of study.

Students satisfy formal degree requirements with a written examination on reading lists that they and their advisors agree upon, or with a written thesis and an oral examination on the thesis and its relation to problems and issues in comparative literature. The M.A. also may be awarded upon successful completion of the comprehensive examination for the Ph.D.

Master of Fine Arts in Film and Video Production

The Master of Fine Arts in film and video production requires 54 s.h. of graduate credit earned in creative and scholarly course work aimed at producing a body of artistic work in film and/or video. A comprehensive exam on an aspect of film and/or video theory in January of the second year, an oral portfolio review, a thesis paper, and a creative thesis project complete the formal degree requirements.

Master of Fine Arts in Translation

The Master of Fine Arts in translation requires 48 s.h. of graduate credit, of which 24 s.h. must be earned at The University of Iowa. The program promotes a specialized form of writing, the study of languages and cultures, and the dissemination of international literatures through a curriculum that combines the creative, linguistic, and critical aspects of translation.

Students develop their skills, knowledge, and critical ability with courses in original-language literary texts, critical theory, and creative writing. Required participation in the Iowa Translation Workshop provides hands-on practice in translation every semester. Students also have opportunities to work closely on translation projects with visiting writers in the International Writing Program.

Course work includes study of foreign literature(s), creative writing, translation studies, and criticism. M.F.A. students may expect to take courses offered by foreign language departments and the creative writing programs as well as comparative literature courses.

M.F.A. students must complete a thesis—usually a book-length collection of poems, literary essays, or stories, or a short novel—translated from the original language into English and accompanied by a critical introduction.

Admission to the program is granted on the basis of a submitted portfolio, including translations into English and original writing in English, or a paper on a literary topic, as well as supporting evidence of competence.

Doctor of Philosophy in Film Studies

The Doctor of Philosophy in film studies requires a minimum of 72 s.h. of graduate credit earned in course work concentrated in film history and film theory. With the consultation and guidance of a faculty committee, students prepare for a qualifying examination in the first or second year, formulate and pursue a plan of study proposing areas to be mastered before the dissertation, present a predissertation exam on these areas, and write a dissertation in the area of advanced research.

Doctor of Philosophy in Comparative Literature
The Doctor of Philosophy in comparative literature requires a minimum of 72 s.h. of graduate credit. Students study at least three literatures, one in historical depth and two others in limited areas of specialization. Students are encouraged to include an interdisciplinary area of concentration. All students devote a portion of their programs to comparative study, bringing the several areas into focus. Specific areas and interrelations of areas are determined by the student in consultation with appropriate faculty members.

The Ph.D. dissertation should demonstrate the candidate's ability to write a substantial piece of scholarship or criticism. Translation of a work of sufficient significance and linguistic complexity, preceded by a critical introduction, may serve as an acceptable dissertation. The final oral exam centers on the dissertation and its background.

**Admission**

The study of literature across linguistic and geographical borders calls for training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. program; knowledge of at least two foreign languages is a prerequisite for Ph.D. study.

For more information, see the procedural guide for graduate students in comparative literature, available from the department.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Resources**

**Institute for Cinema and Culture**

The Institute for Cinema and Culture promotes international film culture on the University of Iowa campus by supplementing the curriculum of the Department of Cinema and Comparative Literature with regular film screenings and public events, often in collaboration with other departments and programs. The institute helps departments, faculty members, and student groups present films and relevant speakers to an interdisciplinary audience. It is especially dedicated to providing Iowa students and faculty members the opportunity to view and study important films from nations and cultures otherwise underrepresented in course offerings and at local theaters.

Each semester the institute offers 048:112 Proseminar in Cinema and Culture, a course with public screenings devoted to a single national cinema or a focused topic in world film. It also regularly sponsors a range of campus film festivals and hosts the Cinematheque series, which showcases rare and unusual films each semester.

**Iowa Translation Workshop**

The Iowa Translation Workshop (048:260) is offered every semester as a required course for M.F.A. students in translation. The workshop is closely coordinated with the International Writing Program, which brings 30 or more writers from other countries to Iowa City each fall semester for 10 weeks of activities on the University of Iowa campus. Students in the fall Iowa Translation Workshop may work closely with one or more writers in translating their works into English. Translators from outside the M.F.A. in translation program also may join the workshop, with the instructor's consent.

**Cinema and Comparative Literature Courses**

**048:001 Introduction to Film Analysis**

Formal analysis of film; narrative cinema and approaches to narrative structure; authorship and genre issues, other major topics.

**048:002 Survey of Film**

Film history, theory, criticism; issues of form, technologies, and cultural functions of cinema; screenings of narrative, documentary, experimental films from varied periods and nations. GE: Humanities.

**048:005 Introduction to World Literature**

Ways of reading world literature; varied emphases (i.e., thematic, geographical; may include poetry, short fiction, drama, novels, and critical works on importance of translation. Prerequisite: completion of rhetoric General Education requirement.

**048:010 Contemporary Cinema**

Current cinema; key genres, movements, filmmakers, technological changes; recent cultural contexts, industrial and economic factors, changes in the film viewing experience. GE: Humanities.
048:011 Films and Screenplays
Films and their origins in original screenplays or adaptations; the screenplay as a distinct form of creative writing. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:011.

3 s.h.

048:012 Film and Society
Relationships between cinema and society in historical and contemporary contexts; censorship, social issues, cinematic treatment of minorities and social groups.

3 s.h.

048:020 U.S. Film
American film industry; social and artistic perspectives.

3 s.h.

048:021 Introduction to European Film
Major works, movements, and recent developments in European cinema; German Expressionism, Soviet montage, Italian Neorealism, French New Wave; social, cultural, political contexts. GE: Humanities.

3 s.h.

048:022 World Film
Filmmaking and film culture outside the United States; key works from Asia, Africa, the Middle East, Latin America; social, cultural, political contexts.

3 s.h.

048:023 Documentary Film
Key works and movements in international nonfiction film, from early cinema to present; formal, historical, philosophical issues in documentary practices.

3 s.h.

048:024 Introduction to Latin American Film
Introduction to filmmaking and films in Latin America through an overview, emphasis on one or more Latin American countries, or a specific theme in Latin American cinema.

3 s.h.

048:025 Introduction to Critical Reading and Viewing
Critical approaches to literature and audiovisual media (film, video, interactive multimedia); selected texts, scholarly and critical responses to them. Prerequisite: completion of rhetoric requirement.

3 s.h.

048:026 Introduction to Asian Film
Introduction to filmmaking and films in Asia through an overview, emphasis on one or more Asian countries, or a specific theme in Asian cinema.

3 s.h.

048:029 First-Year Seminar
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

1 s.h.

048:030 Introduction to Film Theory
Classical film theory--formalist and realist theories, authorship, genre; contemporary film theory--semiotics, feminism, psychoanalysis, ideological criticism, postmodernism, queer theory.

3 s.h.

048:034 Modes of Film and Video Production
Introduction to nonfiction, fiction, and experimental modes of film and video production; video exercises and nonlinear editing.

4 s.h.

048:040 Major Texts in World Literature I
Reading, analysis of major literary texts from writing's origins to 1600 in the Mediterranean, Asia, Africa; interrelationship of literature and history. GE: Humanities. Same as 008:040.

3 s.h.

048:041 Major Texts of World Literature II
Reading and analysis of major literary texts from the 17th century to the present, in chronological sequence; emphasis on interrelationship of literature and history. Prerequisite: completion of rhetoric requirement. GE: Humanities. Same as 008:041.

3 s.h.

048:050 Introduction: East European and Central Asian Cultures

3 s.h.
Introduction to study of major East European, Russian, and Eurasian cultures. Same as 187:050.

048:051 Film Criticism
Evaluation and analysis of film, from journalistic reviews to academic scholarship; principles and theoretical positions.

048:052 Gender and Film
Representations of femininity, masculinity, sexual identity, how they relate to society, culture; examples from feminist, psychoanalytic, queer theory.

048:053 Introduction to Film Sound
Sound as an acoustic, technological, aesthetic, and historical issue; functions of voice, music, sound effects.

048:054 Film/Video Production: Alternative Forms
Hands-on workshops in video blogs, camerealess filmmaking, activist video, or similar content. Prerequisites: 048:034 and consent of instructor.

048:055 Film Production: Material of 16mm Film
Basic 16mm motion picture camera, editing, and sound techniques; individual and group exercises. Prerequisite: 048:034.

048:056 Video Production: Nonfiction
Single-camera shooting on location, with emphasis on editing; group exercises oriented to nonfiction forms. Prerequisite: 048:034.

048:057 Screenwriting: Long Form
Visualization, sequencing, dialog; preparation of treatment, screenplay for fiction film; script problems. Prerequisite: 048:034.

048:058 Video Production: Fiction
Development of fiction video making technique through group projects in the studio and on location, and nonlinear editing. Prerequisite: 048:034.

048:059 Styles and Genres
Major film types (musicals, science fiction, westerns, film noir) and their cultural significance.

048:071 Film Authors
A major director or comparison of directors; director's role in industrial and collaborative contexts, relations between biography and criticism, function of individual styles.

048:072 Undergraduate Translation Seminar
Translation studies for undergraduates; topics related to practice of literary translation.

048:073 Undergraduate Translation Workshop
Translation exercises, discussion of translation works in progress; alternative strategies for translation projects. Prerequisite: working knowledge of a language other than English. Same as 08W:079.

048:074 Film and Literature
Relationships among films, novels, plays, adaptations; shared and distinct formal elements of cinematic and literary texts, their cultural functions. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:081.

048:089 Internship
Opportunity to apply skills; faculty supervision, on or off campus. Prerequisites: cinema and comparative literature major and consent of instructor.

048:094 Undergraduate Seminar
Focus on a significant text or critical problem. Prerequisites: junior or senior standing and cinema and comparative literature major, or consent of instructor.

048:098 Honors Tutorial
Prerequisites: All that information is true.
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<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>048:099</td>
<td>Individual Study</td>
<td>arr.</td>
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<tr>
<td>048:100</td>
<td>Introduction to Criticism and Theory</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Critical approaches to the phenomenon of literature. Prerequisite: junior standing.</td>
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<tr>
<td>048:101</td>
<td>First-Year Modern Hebrew I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elementary Hebrew language instruction; reading, writing, listening, speaking.</td>
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<tr>
<td>048:102</td>
<td>First-Year Modern Hebrew II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elementary Hebrew language instruction; reading, writing, listening, speaking.</td>
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<tr>
<td>048:103</td>
<td>Topics in Contemporary Film</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Specific issues or periods in contemporary film.</td>
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<tr>
<td>048:104</td>
<td>Topics in European Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Specific issues or periods in European film.</td>
<td></td>
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<tr>
<td>048:105</td>
<td>French Cinema</td>
<td>3-4 s.h</td>
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<tr>
<td></td>
<td>Taught in English. Prerequisite: 009:012 or equivalent or consent of instructor. GE: Foreign Civilization &amp; Culture. Same as 009:147.</td>
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<tr>
<td>048:106</td>
<td>Topics in Asian Cinema</td>
<td>3 s.h.</td>
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<td></td>
<td>Issues or topics in East or South Asian cinemas. English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies.PERIOD: 20th- and/or 21st-Century Literature. Same as 008:127, 039:145.</td>
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<tr>
<td>048:107</td>
<td>Russian Literature in Translation 1860-1917</td>
<td>3 s.h.</td>
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<td></td>
<td>Survey of major works, figures, and trends of 19th- and 20th-century Russian literature; age of the Russian novel; development of short fiction, drama, poetry of the Silver Age. Same as 041:102.</td>
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<tr>
<td>048:108</td>
<td>History of Documentary Film</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>A period, type, or concern of nonfiction filmmaking. Prerequisite: 048:001.</td>
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<tr>
<td>048:109</td>
<td>European Literature of the Nineteenth Century</td>
<td>3 s.h.</td>
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<td></td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature. Same as 008:131.</td>
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<tr>
<td>048:110</td>
<td>Comparative Arts</td>
<td>3 s.h.</td>
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<td></td>
<td>Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories. Same as 033:110, 181:110.</td>
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<tr>
<td>048:111</td>
<td>Second-Year Modern Hebrew I</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Development of functional ability to understand, speak, and write modern Hebrew; vocabulary building, culture, grammatical accuracy. Prerequisite: 048:102 or equivalent.</td>
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<tr>
<td>048:112</td>
<td>Proseminar in Cinema and Culture</td>
<td>1-2 s.h</td>
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<td></td>
<td>A national cinema or topic in international film.</td>
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<tr>
<td>048:113</td>
<td>Film and Video Production: Drama</td>
<td>3 s.h.</td>
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<td></td>
<td>Individual and group dramatic video projects; location and studio shooting, nonlinear editing. Prerequisite: 048:065 or 048:066 or 048:068.</td>
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<tr>
<td>048:117</td>
<td>Topics in National Cinema</td>
<td>3 s.h.</td>
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<td></td>
<td>Cinema's intersection with the nation; questions of representation, culture, and identity in the national, subnational, and/or transnational context. Prerequisite: 048:001 or 048:002.</td>
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<tr>
<td>048:118</td>
<td>Topics in World Cinemas</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Issues in international film history and film theory.</td>
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048:119 Topics in Film Sound  
Issues in history and theory of film sound.  

048:120 Issues in Film Theory  
Key theorists, approaches, topics in film theory.  

048:121 Film and Video Production: Selected Topics  
Student productions focusing on a particular genre, issue, or process; 16mm, video, or audio, such as experimental film or video, collaborative projects, nonfiction, narrative, and so forth. Prerequisite: 048:065 or 048:066 or 048:068.  

048:123 Film and Video Production: Image Design  
Strategies, techniques, and technologies used in moving image production; emphasis on generic lighting practices, composition; short projects using film, videotape. Prerequisite: 048:065 or 048:066 or 048:068.  

048:124 Film Production: Advanced 16mm Film  
Processes and approaches to the short film; students produce a seven-minute, sync-sound project, including film shooting and digital editing. Prerequisites: 048:065 or 048:121 or 048:123 or 048:134.  

048:125 Screenwriting: Short Form  
Exercises and projects in writing, developing, and workshopping screenplays for short film or video; budgeting, location scouting, other preproduction activities. Prerequisite: 048:065 or 048:066 or 048:067 or 048:068.  

048:126 Cult Films of the Last Soviet Generation  
Same as 041:126.  

048:128 Racial Narrative and American Performance  
Same as 010:128, 129:128.  

048:129 African American Cinema and Culture  
African American contribution to U.S. cinema in context of African American and American culture. Same as 045:129.  

048:130 Digital Production: Animation  
Intermediate 3-D modeling, motion graphics; student projects culminating in CDR or video presentation. Prerequisite: 048:034.  

048:131 Film/Video/Audio Production: Sound Design  
Concepts and techniques in sound design for film and video; exercises, projects in sound/image relationships using location recording equipment and digital audio workstation for editing, mixing. Prerequisite: 048:065 or 048:066 or 048:068.  

048:132 Video Production: Advanced Video  
Independent short video projects to enhance conceptualization, fiction and nonfiction storytelling skills, camera and editing techniques. Prerequisite: 048:066 or 048:068.  

048:133 Film and Video Production: Editing  
Editing digital video for impact, mood, and story; hands-on exercises, screenings, readings, and workshops using Avid and Final Cut Pro editing software. Prerequisite: 048:065 or 048:066 or 048:068.  

048:134 Theory and Practice of Film/Video Production  
Focus on a type of film (documentary, animation, experimental) or an issue in film theory (sound, narrative structure, point of view); application of theoretical issues; individual productions. Prerequisite: consent of instructor.  

048:135 Issues in Film and Video Production  
Proposal and grant writing, conceptualization, budgeting, and research on varied distribution models for independent films. Prerequisite: 048:065 or 048:066 or 048:067 or 048:068.  

048:141 Chinese Literature: Poetry  
Readings in classical and modern Chinese poetry in English translation. Same as 039:141.
048:142 Modern Japanese Fiction in Translation
Nineteenth century to present. Same as 39J:142.

048:143 Traditional Japanese Literature in Translation
From seventh century to early modern times. Same as 39J:141.

048:144 The Tale of Genji
Close reading in English of Murasaki Shikibu’s *Tale of Genji*; tale’s literary and social contexts, and later reception. Same as 39J:145.

048:145 Latin America Cinema
Political, historical, aesthetic, and cultural issues in key films from Latin American national cinemas. Taught in English. Recommended: knowledge of Spanish. Prerequisite: one Spanish course numbered above 035:100 for Spanish major or one course numbered above 048:050. Same as 035:145.

048:147 Warriors Dreams
Images of the warrior in traditional Japanese literature, from poetry of the eighth century to romances of the 19th century; readings in English. Same as 39J:146.

048:148 The Third Reich and Literature
Nazi literature, literature of the Holocaust and the Opposition, exile literature, in English translation. Taught in English. GE: Foreign Civilization & Culture, Humanities. Same as 13E:118.

048:150 Media Production Workshop
Individual film, video, interactive, or screenwriting project; common problems, screenings of work in progress, criticism. Prerequisite: 048:124 or 048:132.

048:151 Literature and Anthropology
Topics vary. Same as 008:151, 113:109.

048:152 America in Other Words
Current idea of America in its imaginary form: post-1989 world fiction, poetry, and film in original language, in translation, and via online translation resources. Same as 181:152.

048:153 Latin American Studies Seminar

048:154 Twentieth-Century Czech Authors
Twentieth-century prose literature of Czechoslovakia; philosophical works of Capek, Hrabal, Kundera, Klima, Havel. Taught in English. Same as 041:168.

048:155 Narratives Modes
History or theory of narration modes in media.

048:156 Invitation to Nabokov
Nabokov's works and his writings on Russian literature. Same as 008:156, 041:156.

048:157 Twentieth-Century Europe in Literature and Film
Introduction to 20th-century Europe through representative literature and film that reflect and critically engage the period's defining moments in social, cultural, and political history; modernity and emergence of modernist aesthetics, World War I, the Great Depression, the Spanish Civil War, struggles between fascism and communism, World War II, existentialism, the Holocaust, rise of postwar consumer society and technocracy, wars of decolonization, political viscosity in Cold War Eastern Europe, student revolts of the 1960s, fall of the Berlin Wall, collapse of the Soviet Union, postcolonial condition that binds Europe to its colonial history. Taught in English. Same as 009:157.

048:158 East-West Literary Relations
Same as 039:158.

048:159 African Literature Today
Contemporary written and oral African literary texts, literary theories relevant to study of African literatures. Same as 008:159, 187:159.

048:160 Issues in Rhetoric and Culture 3 s.h.
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: (for 036:146) 2.60 cumulative g.p.a., 036:001, and completion of research and criticism and theory requirements. Same as 008:181, 010:160, 036:146, 160:160.

048:161 Transnational and Postcolonial Writing by Women 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:161.

048:162 Pan-Caribbean Literary Currents 3 s.h.
Twentieth-century fiction, film, and cultural practices in the Hispanic, Francophone, and Anglophone Caribbean; cultural essays to complement literary readings; pan-Caribbean cultural practices—music and carnival celebrations. Taught in English. Prerequisite: (for 048:162) junior or senior standing. Prerequisites: (for 035:171) two literature courses. Same as 035:171.

Evolving practices explored through genre, period, movement, or topic, in conjunction with relevant models of analysis; readings in English. Prerequisite: rhetoric.

048:164 Topics in Russian, East European, and Eurasian Studies arr.
Same as 041:164.

048:165 Topics in Polish Literature and Culture 3 s.h.
Major developments in Polish literature and culture; questions of Polish history, politics, and identity, and their expression in literature, the arts, and cinema; Poland's place in Europe, in national and comparative contexts.

048:166 Topics in Literature and Theory 3 s.h.

048:167 Gender and Sexuality in French Cinema 3 s.h.
Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Taught in English. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 009:148, 131:167.

048:168 Post-Colonial Literature in France 3 s.h.
Literatures and cultures of Arabo-French (Beur) and Afro-French immigrations. Prerequisites: 009:111 and 009:112, or equivalents. Same as 009:168.

048:169 Issues in Gender and Sexuality 3 s.h.
Significance of gender and/or sexuality to cinema, in general or in a period, genre, film type, or national cinema; theoretical approaches, including feminist and queer theory.

048:170 Topics in Cinema and Culture 3 s.h.
One or more national cinemas in relation to social, historical, and cultural contexts. Prerequisite: 048:001.

048:171 Film Authors 3 s.h.
A major director or comparison of directors; theoretical approaches to study of film authorship.

048:172 Narrative and the Cinema 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:172.

048:173 Styles and Genres 3 s.h.
Film types, their cultural significance.

048:174 Transnational Chinese Cinemas 3 s.h.
Films from Mainland China, Hong Kong, Taiwan, and Chinese diasporic communities, silent era to present; relationship of film to nation-state, cultural interflows, media technologies, ideologies. English subtitles. Same as 039:173.

**048:175 Topics in Film and Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:175.

**048:176 Modes of Translation Studies** 3 s.h.
Surveys of the vast and growing number of approaches to translation studies; rhetorical, theoretical, practical, artistic, commercial, intermedial issues. Same as 160:176.

**048:177 Literature and Art** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:177.

**048:178 Topics in Latin American Cinema** 3 s.h.
Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course. Same as 035:191.

**048:179 Literature and Society** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:179.

**048:180 Literature and Translation** 3 s.h.
Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as 041:180, 160:180.

**048:183 Modern Chinese Writers** 3 s.h.
Readings in modern and contemporary Chinese fiction; in English translation. Same as 039:180.

**048:184 Topics in REEES** 3 s.h.
Varied topics; interdisciplinary focus on Russian, East European, and Eurasian studies. Same as 187:185.

**048:185 Global Women's Cinema** 3 s.h.
Introduction to contemporary women's cinema and feminist filmmaking from around the world; emphasis on the post-1968 period and on cinema produced outside the United States. Prerequisite: 048:001 or 048:002 or 131:010. Same as 131:185.

**048:186 Special Topics in Literature and History** 3 s.h.
Topics at the intersection of literature, society, history, and ethics; readings vary.

**048:189 Russian Thinkers** 3 s.h.
Same as 026:184, 041:189.

**048:190 Chicano Cinema** 3 s.h.
History of Chicano independent and industry film and television production since the Chicano political and cultural movement began in the 1960s. Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course. Same as 035:190.

**048:191 Early Modern Culture** 3 s.h.
Prerequisites: (for 009:191) 009:111 and 009:112, or equivalents. Same as 009:191.

**048:192 East Meets West: A Cross-Cultural Course** 3 s.h.
Perceptions in the modern period based on analyses of films, literary and philosophical texts from East and West. Same as 039:192.

**048:195 Selected Authors** 3 s.h.
Writings by one or more authors; close readings, literary theory.
048:196 Cuban American Literature and Culture  
3 s.h.  
Experiences of Cuban exiles in the United States; emergence of a literature and culture based on sense of dispossession, marginality, and memory of island past. Taught in English. Prerequisite: 08G:001 or equivalent. GE: Cultural Diversity. Same as 035:143.

048:197 Techniques of Translation  
3 s.h.  
Prerequisite: 009:112 or consent of instructor. Same as 009:197.

048:199 Individual Study  
arr.  
Prerequisite: advanced B.A. enrollment with international and comparative literary projects, or M.A. enrollment in comparative literature.

048:200 Advanced Film/Video Production Workshop  
1-4 s.h.  
Individual film, video, interactive, or screenwriting project; common problems, screenings of work in progress, criticism. Prerequisite: 048:124 or 048:132.

048:205 International Translation Workshop  
1-3 s.h.  
International writers pair with University of Iowa translators to write new works of poetry and fiction in English; second-language fluency not required for international writers. Same as 181:205.

048:211 Comparative Stylistics  
3 s.h.  
Translation from English to French, including literary texts. Same as 009:210.

048:217 Introduction to Contemporary Literary Theory  
3 s.h.  
How major theories construct literary text; structuralist, semiotic, psychoanalytic, Marxist, reader response, Derridian criticism. Taught in English. Same as 035:281.

048:223 Romantic Literature  
3 s.h.  
Same as 008:223.

048:233 Seminar in Chinese Fiction  
3 s.h.  
Novels, novelettes; 16th to 18th centuries (Ming and Qing periods). Prerequisite: ability to read original texts. Same as 039:240.

048:234 Readings in South Asian Literature  
3 s.h.  
Same as 008:234.

048:239 Queer Theory  
3 s.h.  
Same as 008:239.

048:244 Crossing Borders Proseminar  
1 s.h.  

048:247 Crossing Borders Seminar  
2-3 s.h.  

048:250 Writing About Cinema  
1-3 s.h.  
Directed research, writing, revision of graduate work in film studies.

048:259 Issues in Translation  
3 s.h.  
Contemporary and historical theories.

048:260 Translation Workshop  
3 s.h.  
Prerequisites: at least one foreign language and consent of instructor. Same as 08W:260, 181:260.

048:270 Seminar Issues in the History of Translation  
3 s.h.  
Selected readings, current debate on translation's history and theory. Same as 08W:265.
048:273 Advanced Film Theory
A major figure, issue, or approach in film theory. 3 s.h.

048:275 Advanced Film History
A major period or topic in film history; issues in film historiography, research. 3 s.h.

048:276 Narrative Modes
History or theory of narration modes in varied media. 3 s.h.

048:277 Studies in Sound and Image
Theoretical and historical approaches to film sound, technology, style. 3 s.h.

048:291 Translation Internship
arr.

048:298 Special Topics in German Literature
Repeatable. Prerequisite: German graduate standing. Same as 013:298. arr.

048:300 American Film and American Culture
Relationships between film and culture as developed in a particular approach, period, subject. Same as 045:300. 3 s.h.

048:303 Special Topics in Cinema
A topic in analytical, theoretical, or historical cinema. Repeatable. 1-3 s.h.

048:304 Special Topics in Asian Cinema
Key issues, movements, periods, or figures in East or South Asian cinema. Repeatable. Same as 039:304. 3 s.h.

048:305 Special Topics in European Film
Key issues, movements, periods, or figures in European film. Repeatable. 3 s.h.

048:355 Seminar: Comparative Topics
Comparative topics in literature, theory, media, cultural studies. Same as 009:350. arr.

048:402 Seminar: Medieval Literature and Culture
Same as 008:402. arr.

048:407 Seminar: Renaissance Literature
Same as 008:407. arr.

048:409 Special Projects
For doctoral candidates. arr.

048:410 Thesis
arr.

048:441 Seminar in Chinese Literature
Prerequisites: two years of modern Chinese and one year of classical Chinese, or equivalents. Same as 039:241. arr.

048:454 Seminar: Postcolonial Studies
Same as 008:450. 3 s.h.

048:460 Seminar: Problems in Aesthetics and Literary Theory
Same as 008:460. arr.

048:461 Seminar: Problems in Critical Theory
arr.

048:462 Seminar in Comparative Literature
In-depth study of a comparative topic or a current theoretical debate in the discipline. 3 s.h.

048:615 Seminar: Film Theory
A major figure, issue, or approach in film theory. Repeatable. 3 s.h.
048:616 Seminar: Film History 3 s.h.
A major period or topic in film history; issues in film historiography, research. Repeatable.

048:640 Colloquium in Film and Video Production 1-3 s.h.
Production and theory, with focus on varied theoretical issues; readings, projects. Prerequisite: consent of instructor.
Classics

Chair: Carin M. Green
Professors: Helena Dettmer, John F. Finamore, Carin M. Green, Robert C. Ketterer
Professors emeriti: Erling B. Holtsmark, Roger A. Hornsby, Donald F. Jackson
Adjunct professor: Peter Green
Associate professors: Mary J. Depew, Craig Gibson, Glenn R. Storey
Assistant professor: Rosemary Moore
Lecturer: Marcia Lindgren
Undergraduate degrees: B.A. in Ancient Civilization, Classical Languages
Undergraduate nondegree programs: Minors in Ancient Civilization, Classical Languages, Greek, Latin; Postbaccalaureate Certificate in Classics
Graduate degrees: M.A. in Classics, Greek, Latin, Ph.D. in Classics
Web site: http://www.uiowa.edu/~classics

Classics is the study of ancient languages, literatures, and cultures of the Mediterranean basin from approximately 2000 B.C.E. to 600 C.E. It embraces three civilizations--the Minoan-Mycenaean, Greek, and Roman; two languages--Greek and Latin; and a geographical area including Europe, North Africa, Egypt, and the Near East. The Department of Classics provides a basis for understanding and interpreting the contribution of the ancient world to life in the present and the future.

Undergraduate Programs

The department offers a Bachelor of Arts in ancient civilization and in classical languages (Greek and/or Latin). Both majors provide a solid foundation for graduate study in classics, European literature, law, history, art, philosophy, and religion. Graduates have become secondary school and university teachers, lawyers, doctors, librarians, museum curators, and bankers.

The department also offers minors in ancient civilization, classical languages, Greek, and Latin.

Bachelor of Arts in Classical Languages

The Bachelor of Arts in classical languages requires a minimum of 120 s.h., including at least 36 s.h. of work for the major. The program trains students to read the ancient Greek and/or Latin languages and acquaints them with the major works of Greek and/or Roman literature.

Students learn about the history of ancient Greece of the eighth through the fourth centuries B.C.E., where most of the modern Western notions of political, artistic, and social life are rooted. They also develop an understanding of the Roman Republic and Empire, when Rome established its hegemony over the Mediterranean basin, laid the foundation of law for the Western World, and spread Greece's culture to the West.

The major requires the following course work. Transfer credit is evaluated on an individual basis. Students must complete the College of Liberal Arts and Sciences General Education Program.

Intermediate or advanced Greek and/or Latin courses (20G:011 through 20G:199, 20L:011 through 20L:199) 18 s.h.
Greek or Latin prose composition (20G:176 or 20L:171) 3 s.h.
Additional Department of Classics courses at any level, with no more than 9 s.h. in 20E courses 15 s.h.

The advanced undergraduate Greek courses 20G:120 Archaic and Classical Periods I and 20G:121 Archaic and Classical Periods II, and 20G:122 Classical and Hellenistic Periods I and 20G:123 Classical and Hellenistic Periods II are offered every other year and may be repeated or taken in any sequence. They cover a broad range of prose and poetry in historical context.

The advanced undergraduate Latin courses 20L:120 Latin Literature of the Republic I and 20L:121 Latin Literature of the Republic II, and 20L:122 Latin Literature of the Empire I and 20L:123 Latin Literature of the Empire II are offered every other year and may be repeated or taken in any sequence. They cover a range of Latin prose and poetry in historical context from the mid-Republic to the third century C.E.

To comply with the Board of Regents, State of Iowa policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of the department's majors. Every student maintains a portfolio that details his or her progress in attaining the objectives of the major. The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

B.A. with Teacher Licensure in Latin

For information about Teacher Education Programs and licensure, contact the Office of Teacher Education and Student Services in the College of Education; see Education in the Catalog.
Bachelor of Arts in Ancient Civilization

The Bachelor of Arts in ancient civilization requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. The program is sponsored by the Departments of Classics, History, and Religious Studies and the School of Art and Art History. It concentrates on the ancient civilization of the Mediterranean world, draws on courses offered by various University departments, and allows students to create individual programs.

Although the major is not preparation for graduate study in classics, it provides a sound basis for preparing teachers at the secondary school and junior college levels. It also provides a sound liberal arts and sciences basis for preprofessional training in law, medicine, and other professions.

The major requires the following course work. At least 15 of the required 30 s.h. must be earned in advanced work (20E courses at the 100 level, and Latin and Greek language courses numbered 20G:011 and 20G:012, or 20L:011 and 20L:012, or above). Transfer credit is evaluated on an individual basis. Students must complete the College of Liberal Arts and Sciences General Education Program.

Ancient art 6 s.h.
Ancient history 6 s.h.
Ancient philosophy or religion 6 s.h.
Classics, may be 20E courses or Latin or Greek language courses 9 s.h.
Appropriate courses in art, history, philosophy, religion, or linguistics 3 s.h.

To comply with the Board of Regents, State of Iowa policy on student outcomes assessment, the Department of Classics has established a method to assess the achievement level of B.A. students completing one of the department's majors. Every student maintains a portfolio that details his or her progress in attaining the objectives of the major. The student submits the portfolio to the undergraduate advisor by midterm of the semester in which the student intends to graduate. Formal approval of the portfolio is required for graduation. Consult the undergraduate advisor for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Ancient Civilization

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Classical Languages: Greek and Latin

Before the third semester begins: 20L:001 Elementary Latin I and 20L:002 Elementary Latin II, or 20G:001 Classical and New Testament Greek I and 20G:002 Classical and New Testament Greek II; and at least one-quarter of the semester hours required for graduation


Before the seventh semester begins: sixth semester of Latin and fourth semester of Greek, or sixth semester of Greek and fourth semester of Latin, two more courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: enrollment in at least two or three additional courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education
courses, and a sufficient number of semester hours to graduate

B.A. in Classical Languages: Greek Only

Before the third semester begins: 20G:001 Classical and New Testament Greek I, 20G:002 Classical and New Testament Greek II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 20G:011 Second-Year Greek I, 20G:012 Second-Year Greek II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three or four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Classical Languages: Latin Only

Before the third semester begins: 20L:001 Elementary Latin I, 20L:002 Elementary Latin II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 20L:011 World of Cicero, 20L:012 Golden Age of Roman Poetry, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three or four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Membership in the University of Iowa Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Classics seniors who are members of the Honors Program and who have attained a g.p.a. of at least 3.50 in their first three years of classics courses may graduate with honors in classical languages or ancient civilization by completing two courses in honors reading, one each semester of the senior year, for 3 s.h. of credit each. The readings and discussions are on an ancient author or a field in ancient history or literature chosen by students and the instructor. At the end of the second semester, students present a long paper, which is read and judged for honors by two members of the department. Students who write an honors thesis in classical languages must be enrolled at the same time in the appropriate advanced language courses.

Minor in Ancient Civilization

The minor in ancient civilization requires a minimum of 15 s.h., including at least 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

Department of Classics courses in Greek numbered 20G:011 Second-Year Greek I or above and in Latin numbered 20L:011 World of Cicero or above are considered advanced for the minor in ancient civilization. Appropriate courses in art, religion, history, and philosophy may be counted toward the minor in ancient civilization, if approved by the undergraduate advisor. Students who have taken high school Greek or Latin should consult the advisor.

Minor in Classical Languages

The minor in classical languages requires a minimum of 18 s.h., including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count one relevant classics department course taught in English (prefix 20E) toward the minor. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

The sequences 20G:011 Second-Year Greek I and 20G:012 Second-Year Greek II, 20L:011 World of Cicero and 20L:012 Golden Age of Roman Poetry, and Department of Classics courses numbered 100 and above are considered advanced for the minor in classical languages. Students may satisfy the requirements for the minor by completing 20G:011 Second-Year Greek I and 20G:012 Second-Year Greek II, 20L:011 World of Cicero and 20L:012 Golden Age
of Roman Poetry, plus two 100-level courses, one of which may be a relevant 20E course in Greek or Roman history, culture, or literature. For a list of relevant courses, contact the undergraduate advisor. Students who have taken high school Greek or Latin should consult the advisor.

**Minor in Greek**

The minor in Greek requires a minimum of 15 s.h., including at least 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count one relevant classics department course taught in English (prefix 20E) toward the minor. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

The sequence 20G:011 Second-Year Greek I and 20G:012 Second-Year Greek II, and Department of Classics courses numbered 100 and above are considered advanced for the minor in Greek. Students may satisfy the requirements for the minor by completing 20G:011 Second-Year Greek I and 20G:012 Second-Year Greek II plus two 100-level courses, one of which may be a relevant 20E course in Greek history, culture, or literature. For a list of relevant courses, contact the undergraduate advisor. Students who have taken high school Greek should consult the advisor.

**Minor in Latin**

The minor in Latin requires a minimum of 15 s.h., including at least 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count one relevant classics department course taught in English (prefix 20E) toward the minor. A maximum of 6 s.h. of work for another University of Iowa major, minor, or certificate and up to 3 s.h. of lower-level transfer credit may be counted toward the minor.

The sequence 20L:011 World of Cicero and 20L:012 Golden Age of Roman Poetry, and Department of Classics courses numbered 100 and above are considered advanced for the minor in Latin. Students may satisfy the requirements for the minor by completing 20L:011 World of Cicero and 20L:012 Golden Age of Roman Poetry plus two 100-level courses, one of which may be a relevant 20E course in Roman history, culture, or literature. For a list of relevant courses, contact the undergraduate advisor. Students who have taken high school Latin should consult the advisor.

**Language for Nonmajors**

Nonmajors who wish to study Greek or Latin and who have background in either language should take either the Greek Foreign Language Placement Test or the Latin Foreign Language Placement Test, offered during summer orientation programs and monthly by Evaluation and Examination Service. The tests help determine the level at which a student should begin Greek or Latin language study at The University of Iowa.

Students who want to fulfill the College of Liberal Arts and Sciences General Education Program foreign language requirement by studying Greek should take 20G:001 Classical and New Testament Greek I, 20G:002 Classical and New Testament Greek II, 20G:011 Second-Year Greek I, and 20G:012 Second-Year Greek II. Students must complete all four courses to fulfill the General Education Program requirement.


**Postbaccalaureate Certificate in Classics**

The Postbaccalaureate Certificate in Classics requires 18 s.h. in Department of Classics courses numbered 100 and above (upper-level and graduate courses). The program is designed for students who have a baccalaureate and wish further study in Greek and Latin in order to be competitive for admission to a graduate program in classics. Entry to most graduate programs requires study of both Latin and Greek, normally a minimum of three years in one language and two years in the other.

The certificate is designed to be completed in two semesters by students who enter with two years of Latin and one to two years of Greek, or vice versa. It requires 18 s.h. in Department of Classics courses numbered 100 or above (upper-level and graduate courses), including at least 12 of the required 18 s.h. must be earned in Greek and Latin language courses. The remaining 6 s.h. may be earned in approved advanced 20E courses. Transfer credit is not
accepted toward the certificate. Students must maintain a g.p.a. of at least 3.00 to remain in good standing and complete the program.

A suggested plan of study for a student who enters the program with two years of Latin and one year of Greek is as follows.

**Fall semester:**
- 20E:198 Postbaccalaureate Seminar 0 s.h.
- 20G:011 Second-Year Greek I 3 s.h.
- 20L:120 Latin Literature of the Republic I 3 s.h.
- 20L:171 Elementary Latin Composition 3 s.h.

**Spring semester:**
- 20G:012 Second-Year Greek II 3 s.h.
- 20L:121 Latin Literature of the Republic II 3 s.h.
- One elective with prefix 20E, 20G, or 20L numbered 100 or above 3 s.h.

A suggested plan of study for a student who enters the program with two years of Latin and two years of Greek is as follows.

**Fall semester:**
- 20E:198 Postbaccalaureate Seminar 0 s.h.
- 20G:120 Archaic and Classical Periods I 3 s.h.
- 20L:120 Latin Literature of the Republic I 3 s.h.
- 20L:171 Elementary Latin Composition 3 s.h.

**Spring semester:**
- 20G:121 Archaic and Classical Periods II 3 s.h.
- 20L:121 Latin Literature of the Republic II 3 s.h.
- One elective with prefix 20E, 20G, or 20L numbered 100 or above 3 s.h.

Students who complete the program successfully receive a certificate from the College of Liberal Arts and Sciences and a letter from the Department of Classics.

**Admission**

Applicants must have a baccalaureate degree from an accredited college or university and a minimum of two years of language study (two years of Latin or two years of Greek, or one year of each). In unusual circumstances, students with less language preparation may be admitted.

Applicants who are not enrolled in a graduate or professional program may apply to The University of Iowa as undergraduate transfer students; they must state on their application that they are applying to the College of Liberal Arts and Sciences for admission to the classics postbaccalaureate certificate program. They must submit transcripts confirming preparation for certificate language study, a statement of purpose, scores on the Graduate Record Examination (GRE) General Test, a writing sample, and three letters of recommendation from faculty members at their baccalaureate institution.

**Graduate Programs**

The department offers a Master of Arts in classics, Greek, and Latin; and a Doctor of Philosophy in classics.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Master of Arts**

The Master of Arts in classics, Greek, or Latin requires a minimum of 30 s.h. in courses numbered 101 and above. Students may count a maximum of 12 s.h. earned in courses numbered 101-199 toward the degree. Courses taken to compete the Postbaccalaureate Certificate in Classics do not count toward the degree.

Students must pass a sight examination in the language(s) studied and an examination on literature and history.
Doctor of Philosophy

The Doctor of Philosophy in classics requires a minimum of 72 s.h. of graduate credit, including the courses listed below (27 s.h.). Students may count no more than 12 s.h. earned in courses numbered 101-199 toward the degree. Courses taken to complete the Postbaccalaureate Certificate in Classics may not be counted toward the degree.

Students also must take precomprehensive and comprehensive examinations and write a dissertation.

REQUIRED COURSES

20G:176 Greek Composition (or equivalent) 3 s.h.
20G:204 Archaic Greek Literature 3 s.h.
20G:205 Classical and Hellenistic Literature 3 s.h.
20L:204 Republican Literature 3 s.h.
20L:205 Imperial Literature 3 s.h.
20L:272 Advanced Latin Composition (or equivalent) 3 s.h.
Two graduate-level courses in cognate subjects such as anthropology, art history, linguistics, philosophy, or rhetoric 6 s.h.
Other interdisciplinary courses (with approval of the graduate advisor)

The remaining course work is made up of Department of Classics and other courses.

PH.D. EXAMINATIONS

Ph.D. students must take precomprehensive exams in Latin sight reading and Greek sight reading and must attempt one sight reading exam by the end of their first year of graduate study. Competence in reading both German and French must be demonstrated by the end of the second year of study.

Students must take the second-year exam at the end of their second year. The remaining exams may be taken in any sequence. Students must file a request for the fourth-year comprehensive exam at least three weeks before the date of the exam.

Sight-Reading Exam

Latin: four hours, written
Greek: four hours, written

Second-Year Exam

Literature and history: four hours, written

Fourth-Year Comprehensive Exam

Greek and Roman history/material culture based on reading list: three hours, written
Latin literature, based on reading list: three hours, written
Greek literature, based on reading list: three hours, written

If a student performs unsatisfactorily on either or both of the Latin and Greek reading list exams, the director of graduate studies sets up an oral exam in order to review questions on which the student did not exhibit sufficient knowledge.

Special field or author (Greek): four hours, written
Special field or author (Latin): four hours, written

Facilities

The University of Iowa Main Library and the Art Library house extensive collections of classical texts and uninterrupted runs of classical periodicals from 1850 that facilitate research in the major areas of Greek and Roman civilization. The Department of Classics has a varied collection of slides on classical subjects and a small library of reference works, texts, and issues of classical and archaeological journals. The department's classical museum contains a small collection of coins, vases, and facsimiles in bronze from Mycenae, Pompeii, and Herculaneum.
The University is a supporting institution of the American School of Classical Studies at Athens, the American Academy in Rome, and the Intercollegiate Center for Classical Studies in Rome. Consult the director of undergraduate studies for more information.

The department offers students the opportunity to participate in an archaeological dig during the summer. Contact the Department of Classics in mid-February for details.

Classics Courses

Classics in English for Undergraduates

All readings for these courses are in English except Sanskrit courses 20E:110 First-Year Sanskrit: First Semester, 20E:111 First-Year Sanskrit: Second Semester, 20E:121 Second-Year Sanskrit: First Semester, and 20E:122 Second-Year Sanskrit: Second Semester; no previous knowledge of Greek or Latin is necessary.

20E:009 Classics and Cinema 3 s.h.
Cinematic depictions of the classical world compared with scholarly views; selected films and primary ancient sources of the same period.

20E:014 Hero, God, Mortal: Literature of Greece 3 s.h.
Ancient Greek literature and culture as it responded to Homer; may include genre (e.g., epic to tragedy), religion, changing concept of hero, interaction with Mediterranean cultures, myth versus history. GE: Foreign Civilization & Culture, Humanities.

20E:015 Love and Glory: Literature of Rome 3 s.h.
Main themes and works of ancient Roman literature; works reflecting conflict of personal desire and public self in Rome. GE: Foreign Civilization & Culture, Humanities.

20E:020 Greek and The New Testament 3 s.h.
Cultural history and intellectual tradition of the Greek-speaking eastern Mediterranean to explore why early Christians chose to preserve New Testament writings in Greek.

20E:026 Introduction to Ancient Art 3 s.h.
Art and architecture of the Mediterranean world ca. 3500 B.C.E. to death of Constantine (337 C.E.); Egyptian, Cycladic, Minoan, Mycenaean, Greek, Etruscan, and Roman cultures; artistic responses to life and death; impact of breakthroughs in technology and engineering on visual culture; role of art in empire building; interrelationships of art, politics, religion. Prerequisite: 01H:005 or consent of instructor. Same as 01H:026.

20E:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first or second-semester standing.

20E:030 Greek Civilization 3 s.h.
History, literature, art, architecture, religion, social life ca. 3000 B.C.E. to second century B.C.E. GE: Historical Perspectives.

20E:031 Roman Civilization 3 s.h.
History, literature, politics, religion, social structure from eighth century B.C.E. to second century C.E. GE: Historical Perspectives.

20E:050 Word Power: Building English Vocabulary 3 s.h.
Analysis of unfamiliar English words through knowledge of the history and meaning of word parts. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: one semester of rhetoric. Same as 08N:050.

20E:051 Word Power II: Building English Vocabulary--Advanced 3 s.h.
Continuation of 20E:050; vocabulary building through additional Latin and Greek bases; vocabulary recognition through analysis of Greek and Latin elements of English words; how words change over time. Prerequisite: 20E:050.

20E:071 Middle East and Mediterranean, Alexander to Suleiman 3 s.h.

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<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>20E:075</td>
<td><strong>Ancient Sports and Leisure</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Sports, games, and hobbies in the ancient world, primarily Greece and Rome, 1500 B.C.E. to 500 C.E.; ancient Olympic games, Roman festival games; anthropology of sport.</td>
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<tr>
<td>20E:076</td>
<td><strong>The Olympics: Ancient and Modern</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Origins and development of the ancient and modern Olympics; the Olympic spirit, political and religious contexts, and athletics through literature and material culture. Same as 028:072.</td>
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<tr>
<td>20E:090</td>
<td><strong>Education in Classical Antiquity</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Education in the Greek and Roman worlds from Homer into late antiquity.</td>
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</table>

**Classics in English for Undergraduate and Graduate Students**

All of these, except the Sanskrit courses, are taught in English.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>20E:101</td>
<td><strong>Ancient Egypt and the Ancient Near East</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Same as 16E:101</td>
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</tr>
<tr>
<td>20E:103</td>
<td><strong>Medical and Technical Terminology</strong></td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Memorization of word stems and basic medical terms, practice on computer terminal; no formal classes.</td>
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<tr>
<td>20E:106</td>
<td><strong>Warfare in Ancient Mediterranean Society</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Same as 16E:106</td>
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<tr>
<td>20E:109</td>
<td><strong>Women in Antiquity</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Attitudes toward women and the role of women in ancient Greek and Roman society; ancient authors, male and female, and modern critics. Same as 131:109.</td>
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<tr>
<td>20E:110</td>
<td><strong>First-Year Sanskrit: First Semester</strong></td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Grammar, basic vocabulary; elementary readings. Offered fall semesters of even years. Prerequisite: undergraduate standing. GE: Foreign Language First Level Proficiency. Same as 039:110.</td>
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<tr>
<td>20E:111</td>
<td><strong>First-Year Sanskrit: Second Semester</strong></td>
<td>4 s.h.</td>
</tr>
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<td></td>
<td>Readings in epic and story literature. Offered spring semesters of odd years. Prerequisites: 039:110 and undergraduate standing. GE: Foreign Language Second Level Proficiency. Same as 039:111.</td>
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<tr>
<td>20E:112</td>
<td><strong>Classical Mythology</strong></td>
<td>3 s.h.</td>
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<td></td>
<td>Ancient Greek and Roman myths, their interpretation by Western civilization; emphasis on flexibility of myth and its importance for art, literature, anthropological, psychological studies. GE: Humanities. Same as 008:125.</td>
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</tr>
<tr>
<td>20E:113</td>
<td><strong>Middle Egyptian I</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to the language (c. 2200-1350 B.C.E.) and script (hieroglyphics) of ancient Egypt.</td>
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<tr>
<td>20E:114</td>
<td><strong>Middle Egyptian II</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Continuation of 20E:113; introduction to the language (c. 2200-1350 B.C.E.) and script (hieroglyphics) of ancient Egypt. Prerequisite: 20E:113.</td>
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<tr>
<td>20E:115</td>
<td><strong>Greek Religion and Society</strong></td>
<td>3 s.h.</td>
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<td></td>
<td>From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymn, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: Humanities. Same as 032:164.</td>
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</tr>
<tr>
<td>20E:117</td>
<td><strong>Concepts of the City: Rome</strong></td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Physical and cultural development of the city of Rome from early republic to emperor Constantine and rise of Christianity in fourth century C.E.</td>
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</tr>
</tbody>
</table>
20E:118 Greek Archaeology and Ethnohistory 3 s.h.
Archaeology and ethnology of the Greek world, from end of Bronze Age to late Roman Empire; sociocultural processes that influence development and persistence of Greek civilization. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 113:192.

20E:119 Roman Archaeology 3 s.h.
Archaeology and ethnology of Roman civilization from Iron Age eighth-century occupation of the Palatine Hill to the end of the Roman empire in the West, A.D. 476. Prerequisite: 113:012 or 113:013 or consent of instructor. Same as 113:194.

20E:120 Concepts of the City: Athens 3 s.h.
Athens from Bronze Age to present; city's role in development of political democracy and religion.

20E:121 Second-Year Sanskrit: First Semester 3 s.h.
Readings in epic and puranic texts. Offered fall semesters of odd years. Prerequisites: 039:111 or consent of instructor, and undergraduate standing. GE: Foreign Language Second Level Proficiency. Same as 039:112.

20E:122 Second-Year Sanskrit: Second Semester 3 s.h.
The Bhagavadgita and related religious/philosophical texts. Offered spring semesters of even years. Prerequisites: 039:112 or consent of instructor, and undergraduate standing. GE: Foreign Language Fourth Level Proficiency. Same as 039:113.

20E:124 Classical Greek Art 3 s.h.
Art, sacred architecture from early Classical through late fourth century B.C.E.; Athens in the Golden Age. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 01H:127.

20E:128 Art of Early Rome: Patrons and Politics 3 s.h.
Art and architecture of Roman Italy and provinces from late Caesar Republic through reign of Hadrian, 80 B.C.E.-138 C.E. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 01H:132.

20E:129 Art and Culture in Ancient Pompeii 3 s.h.
Art and architecture, as documents of ancient society and religion in towns destroyed by Mount Vesuvius in C.E. 79. Prerequisite: 01H:005 or 01H:026 or consent of instructor. Same as 01H:134.

20E:130 Later Roman Art 3 s.h.
Art and architecture of late imperial Rome and the provinces, from the Antonines through Constantine, C.E. 138-337. Prerequisite: 01H:005 or 01H:026. Same as 01H:133.

20E:133 Advanced Topics in Mythology 3 s.h.
In-depth exploration of issues in mythology raised in 20E:112; theories of myth, comparative mythology, reception of myth; experience applying methodologies and approaches to specific myths or clusters of myths in Greco-Roman and world traditions. Prerequisite: 20E:112 or equivalent.

20E:136 Food in Ancient Mediterranean Society 3 s.h.
Practices and values influenced by consumption and production of food in ancient Mediterranean societies; varied topics, including methods of food production and distribution, hierarchies of status as associated with food, food and ethnic identity, food and health, food and religion; focus on classical Greek and Roman society, also Egypt, the ancient Near East, and Persia; group presentations, several short papers, research project. Recommended: familiarity with Greek and Roman civilization and history. Same as 16E:102.

20E:140 Magic in the Ancient World 3 s.h.
Ancient Greek and Roman writings on magic, including ancient spells and charms. Prerequisite: completion of rhetoric requirement.

20E:141 Studies in Latin Literature 3 s.h.
In-depth look at specific authors or genres, as indicated in the subtitle, focusing on Latin literary texts from second century B.C.E. to fifth century C.E. and the post-antique reception of those texts. Taught in English.

20E:150 Gender and Sexuality in the Ancient World 3 s.h.

Survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome; evidence from literature, the visual arts, archaeology. Prerequisites: completion of rhetoric requirement and sophomore standing. GE: Foreign Civilization & Culture. Same as 131:152, 154:121.

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<tr>
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</thead>
<tbody>
<tr>
<td>20E:180</td>
<td>Teaching in the Classics</td>
<td>3 s.h.</td>
<td>Instructional approaches and issues in teaching ancient language and civilization at secondary and college levels. Prerequisite: 20G:002 or 20L:002 or equivalent or consent of instructor.</td>
</tr>
<tr>
<td>20E:190</td>
<td>Honors Readings</td>
<td>arr.</td>
<td>Discussion, readings, research for a paper on ancient civilization. Prerequisite: ancient civilization major.</td>
</tr>
<tr>
<td>20E:196</td>
<td>The Archaeology of Ancient Egypt</td>
<td>3 s.h.</td>
<td>Introduction to the archaeology of ancient Egypt from predynastic times to Roman Egypt, including monumental architecture; patterns of everyday life; social, economic, and demographic considerations; history of archaeology in Egypt. Prerequisite: 113:012 or consent of instructor. Same as 113:196.</td>
</tr>
<tr>
<td>20E:198</td>
<td>Postbaccalaureate Seminar</td>
<td>0 s.h.</td>
<td>Current work of postbaccalaureate students; preparation of writing sample and portfolio. Prerequisite: postbaccalaureate certificate enrollment.</td>
</tr>
</tbody>
</table>

**Classics in English for Graduate Students**

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<tr>
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<th>Credits</th>
<th>Prerequisites/Notes</th>
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</thead>
<tbody>
<tr>
<td>20E:201</td>
<td>Topics in Comparative Romance Linguistics</td>
<td>3 s.h.</td>
<td>Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 035:207, 103:262, 164:262.</td>
</tr>
<tr>
<td>20E:220</td>
<td>Proseminar in Classics</td>
<td>1 s.h.</td>
<td>Texts, techniques, and trends in classical scholarship; areas and subtopics of classical scholarship.</td>
</tr>
</tbody>
</table>

**Greek for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>20G:001</td>
<td>Classical and New Testament Greek I</td>
<td>5 s.h.</td>
<td>Introduction to ancient Greek; Greek readings from all periods, from Homer and classical Greek poetry and prose to Christian writings and beyond; focus on classical and New Testament works, Greek culture and thought; comprehension, vocabulary, structure of Greek words and sentences; first of two-semester sequence. GE: Foreign Language First Level Proficiency.</td>
</tr>
<tr>
<td>20G:002</td>
<td>Classical and New Testament Greek II</td>
<td>5 s.h.</td>
<td>Continuation of 20G:001; focus on classical and New Testament works, Greek culture and thought, comprehension, vocabulary, structure of Greek words and sentences; increased emphasis on original texts. Prerequisite: 20G:001. GE: Foreign Language Second Level Proficiency.</td>
</tr>
<tr>
<td>20G:011</td>
<td>Second-Year Greek I</td>
<td>3 s.h.</td>
<td>Focus on reading Greek prose authors, such as Xenophon and Plato. Prerequisite: 20G:002 or equivalent. GE: Foreign Language Second Level Proficiency.</td>
</tr>
</tbody>
</table>
### Greek for Undergraduate and Graduate Students

**20G:120 Archaic and Classical Periods I**
Readings in major Greek authors of the Archaic and Classical periods. Prerequisites: 20G:012 or equivalent, and consent of instructor. 3 s.h.

**20G:121 Archaic and Classical Periods II**
Continuation of 20G:120. Prerequisite: 20G:012 or equivalent. 3 s.h.

**20G:122 Classical and Hellenistic Periods I**
Readings in Greek literature of the Classical and Hellenistic periods. Prerequisite: 20G:012 or equivalent or consent of instructor. Same as 032:122. 3 s.h.

**20G:123 Classical and Hellenistic Periods II**
Continuation of 20G:122. Prerequisite: 20G:012 or equivalent. Same as 032:123. 3 s.h.

**20G:176 Greek Composition**
Review of Greek morphology, syntax, sentence structure; composition of sentences, short passages in Greek. 3 s.h.

**20G:190 Honors Readings**
Discussion, readings, research for a paper on Greek literature, history, or civilization. Prerequisite: classical languages major. arr.

**20G:199 Private Assignments**
Directed reading and study with faculty member. 1-3 s.h.

### Greek for Graduate Students

Courses numbered 20G:222 Archaic Poetry and 20G:223 Hellenistic Literature cover topics from the major genres and periods of Greek literature. They are offered on a four-year cycle.

Courses numbered 20G:222 Archaic Poetry, 20G:223 Hellenistic Literature, and 20G:228 Classical Greece cover authors, genres, and topics of the major periods of Greek history. Specific topics are determined by the instructor's expertise and research interests. Ph.D. students are exposed to topics in all major periods at least once in four years of course work.

**20G:202 Advanced Reading**
Prerequisite: classics graduate standing. arr.

**20G:204 Archaic Greek Literature**
Introductory survey of Greek literature and language from Homer to end of the fifth century. 3 s.h.

**20G:205 Classical and Hellenistic Literature**
Introductory survey of Greek literature and language in and after the fourth century B.C.E. 3 s.h.

**20G:222 Archaic Poetry**
Topics chosen from Homer, Hesiod, Homeric hymns or lyric poetry. Repeatable. 3 s.h.

**20G:223 Hellenistic Literature**
Authors, genres, and topics from the death of Alexander to the accession of Augustus. Repeatable. 3 s.h.

**20G:228 Classical Greece**
Authors, genres, and topics from the fourth and fifth centuries B.C.E. Repeatable. 3 s.h.

**20G:229 Roman Greece**
Greek authors of the Second Sophistic, including Plutarch, Lucian, and Philostratus; seminar. 3 s.h.
**20G:291 Greek Thesis**
For Ph.D. students writing a dissertation. Repeatable. Prerequisite: Ph.D. candidacy.

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**Latin for Undergraduates**

**20L:001 Elementary Latin I**
Focus on reading Latin and on Roman culture. GE: Foreign Language First Level Proficiency. 5 s.h.

**20L:002 Elementary Latin II**
Continuation of 20L:001. Prerequisite: 20L:001. GE: Foreign Language Second Level Proficiency. 5 s.h.

**20L:005 Accelerated Latin**
Combines two semesters of Latin in one semester. Duplicates 20L:001 and 20L:002; additional credit will not be earned by those who take 20L:001, 20L:002, and 20L:005. Recommended: experience learning a foreign language. GE: Foreign Language Second Level Proficiency. 3-5 s.h.

**20L:011 World of Cicero**
Focus on reading Latin prose authors, such as Caesar and Cicero. Prerequisite: 20L:002 or two years of high school Latin. GE: Foreign Language Second Level Proficiency. 3 s.h.

**20L:012 Golden Age of Roman Poetry**
Focus on reading and interpretation of Roman poets, such as Vergil and Catullus. Prerequisite: 20L:011 or equivalent. GE: Foreign Language Second Level Proficiency. 3 s.h.

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**Latin for Undergraduate and Graduate Students**

**20L:120 Latin Literature of the Republic I**
Prose or poetry by major authors of the republic. Prerequisite: 20L:012 or equivalent. 3 s.h.

**20L:121 Latin Literature of the Republic II**
Continuation of 20L:120. Prerequisite: 20L:012 or equivalent. 3 s.h.

**20L:122 Latin Literature of the Empire I**
Prose or poetry by major authors of the empire. Prerequisite: 20L:012 or equivalent. arr.

**20L:123 Latin Literature of the Empire II**
Continuation of 20L:122. Prerequisite: 20L:012 or equivalent. 3 s.h.

**20L:171 Elementary Latin Composition**
Review of Latin morphology, syntax, sentence structure; composition of sentences, short passages in Latin. 3 s.h.

**20L:190 Honors Readings**
Discussions, readings, research for a paper on Roman literature, history, or civilization. Prerequisite: classical languages major. 3 s.h.

**20L:199 Private Assignments**
Directed reading and study with faculty member for advanced students. 1-3 s.h.

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**Latin for Graduate Students**

Courses numbered 20L:222 Augustan Poetry through 20L:225 cover topics from the major genres and periods of Latin literature. They are offered on a four-year cycle.

Courses numbered 20L:220 Republican Rome, 20L:228 Late Roman Empire, and 20L:229 High Empire cover authors,
genres, and topics of the major periods of Roman history. Specific topics are determined by the instructor’s expertise and research interests. Ph.D. students are exposed to topics in all major periods at least once in four years of course work.

### 20L:202 Advanced Reading
Repeatable. Prerequisite: classics graduate standing.

### 20L:204 Republican Literature
Introductory survey of Latin literature and language from the early Republic to the end of the first century B.C.E.

### 20L:205 Imperial Literature
Introductory survey of Latin literature and language from the Augustan age through the second century C.E.

### 20L:217 Accelerated Elementary Latin/Graduate
One year of Latin in one semester. Offered summer session.

### 20L:220 Republican Rome
Authors and topics from the beginnings of Roman literature to the death of Julius Caesar. Repeatable.

### 20L:222 Augustan Poetry
Authors and topics from the death of Caesar to the accession of Tiberius. Repeatable.

### 20L:228 Late Roman Empire
Authors and topics from the third through fifth centuries C.E. Repeatable.

### 20L:229 High Empire
Authors and topics from the first and second centuries C.E. Repeatable. Same as 032:229.

### 20L:272 Advanced Latin Composition
Writing of extended prose passages in Latin.

### 20L:291 Latin Thesis
For Ph.D. students writing a dissertation. Repeatable. Prerequisite: Ph.D. candidacy.
Communication Sciences and Disorders

Chair: Paul J. Abbas

Professors: Paul J. Abbas (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Ruth A. Bentler, Carolyn Jane Brown (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Kate E. Gfeller (Music/Communication Sciences and Disorders), Richard R. Hurtig (Starch Faculty Fellow), Karen Kirk, Karla K. McGregor, Ingo R. Titze (Communication Sciences and Disorders/Music, UI Foundation Distinguished Professor), J. Bruce Tomblin (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery, Stipiestersbach Professor), Chris W. Turner (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Richard S. Tyler (Otolaryngology—Head and Neck Surgery/Communication Sciences and Disorders)

Professors emeriti: Erich S. Luschei, Kenneth L. Moll, Hughleltt L. Morris, Arnold M. Small, Duane C. Sprriestersbach, Duane R. Van Demark

Professor (clinical): Lenore Holte

Adjunct professors: Faniborz Alipour-Haghighi, Lorraine Ramig

Associate professors: Douglas Baynton (History/Communication Sciences and Disorders), Eileen Finnegan (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Jean K. Gordon, Michael P. Karmeli (Otolaryngology—Head Neck Surgery/Communication Sciences and Disorders), Jerald B. Moon, Patricia M. Zebrowski

Associate professors (clinical): Charles V. Anderson, Penelope, K. Hall

Associate professors emeriti: Charles V. Anderson, Penelope, K. Hall

Associate professors: Toni D. Cilek, Ann M. Fennell, Danielle Kelsay, Linda Louko, Diane P. Niebuhr, Anne K. Wallace

Adjunct associate professors: Carolyn Jean Brown, Charles A. Miller, Ronald C. Scherer, Katherine Verdolini, Gerald N. Zimmermann

Assistant professors: Sandie Bass-Ringdahl, Melissa Duff, Shawn J. Goodman, Amanda Owen

Assistant professors (clinical): Karen Bryant, Stephanie Fleckenstein

Adjunct assistant professors: Sarah Klemak, Alice Smith, Brad Story, Gail Takahashi

Adjunct instructors in practicum instruction: Barbara Anderson, Emily Andrews, Julie Bridges, Paige Burden, Debora Downey, Suzanne Dunn, Jessica Egge, Leisha Eiten, Kelly Macauley Frost, Katherine Emrich Seerveld, Barbara A. Gienapp, Peggy Gingerich, Daniel Hansen, Diana Hanson, Emily Hart, Rebecca Hubbard, Marni Kenworthy, Judith Knabe, Claudia L. Knutson, Martha Barth Leick, Maggie Lenkowski, Mary Lowder, Pena Lubrica, Mary F. Lukas, Beth MacPherson, Joan D. Martilla, Elizabeth Merrifield, Rebecca R. Miller, Kelly Neppl, Aaron Packer, Debra K. Robin, Janette Rogers, Sandra D. Show, Christine Troxell, Michael Tysklind, Tanya Van Voorst

Undergraduate degree: B.A. in Speech and Hearing Science

Graduate degrees: M.A. in Speech Pathology and Audiology, Ph.D. in Speech and Hearing Science, Au.D.

Web site: http://www.shc.uiowa.edu

The courses and degree programs of the Department of Communication Sciences and Disorders are planned to meet the needs of students preparing for careers in clinical service, college and university teaching, and research concerned with speech, language, or hearing processes and disorders. The department also offers courses for students with vocational and professional goals in other fields—for example, engineering, psychology, education, speech, theatre arts, dentistry, and medicine—whose preparation may be enriched by the study of speech and hearing processes and their disorders.

Advanced degree holders in communication sciences and disorders provide clinical services for people with speech, hearing, or language problems in hospitals, community clinics, rehabilitation facilities, elementary and secondary schools, and private practice. They teach in colleges and universities and conduct research in laboratories concerned with communication processes and disorders.

The department’s professional programs leading to the M.A. or Au.D. are accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA).

Undergraduate Program

The department offers a Bachelor of Arts in speech and hearing science. The program emphasizes the normal processes of speech, hearing, and language.

The Master of Arts or Doctor of Audiology is the minimum level of preparation for persons seeking professional careers in communication sciences and disorders. The undergraduate curriculum leading to the B.A. in speech and hearing science does not qualify an individual to work professionally in the field. Instead, it is designed primarily to prepare students for graduate work. It also may be pursued by students earning College of Liberal Arts and Sciences degrees who are not seeking careers in speech pathology and audiology.

Bachelor of Arts

The Bachelor of Arts in speech and hearing science requires a minimum of 120 s.h., including 55-56 s.h. of work for the major. Requirements include nine core courses offered by the department and eight cognate courses offered by other departments. Students must complete the College of Liberal Arts and Sciences General Education Program. Transfer students must complete a minimum of 15 s.h. toward the major at The University of Iowa. Requirements for the major are as follows.

CORE COURSES

All of these:

003:015 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
003:110 Phonetics: Theory and Applications 3 s.h.
003:111 Basic Acoustics for Speech and Hearing 3 s.h.
003:112 Anatomy and Physiology of Speech Production 4 s.h.
003:113 Introduction to Hearing Science 4 s.h.
003:116 Basic Neuroscience for Speech and Hearing 3 s.h.
003:117 Psychology of Language 3 s.h.
003:118 Language Development 3 s.h.
003:185 Hearing Loss and Audiometry 3 s.h.

COGNATE COURSES

Students may choose cognate courses that help fulfill the College of Liberal Arts and Sciences General Education Program.

Both of these:

031:001 Elementary Psychology 3 s.h.
103:100 Introduction to Linguistics 3 s.h.

One of these:

07P:025/22S:025 Elementary Statistics and Inference 3 s.h.
07P:143/22S:102 Introduction to Statistical Methods 3 s.h.
22S:030 Statistical Methods and Computing 3 s.h.
22S:101 Biostatistics 3 s.h.

One of these:

004:007 General Chemistry I 3 s.h.
004:011 Principles of Chemistry I 4 s.h.
029:008 Basic Physics (preferably with lab) 4 s.h.
029:011 College Physics I 4 s.h.

One of these:

031:013 Introduction to Clinical Psychology 3 s.h.
031:050 Psychology of Aging 3 s.h.
031:063 Abnormal Psychology: Health Professions 3 s.h.
042:108 Basic Aspects of Aging 3 s.h.

One of these:

07P:106 Child Development 3 s.h.
031:014 Introduction to Developmental Science 3 s.h.

One of these:

002:002 Introductory Animal Biology (with lab) 4 s.h.
002:010 Principles of Biology I (with lab) 4 s.h.

One of these:

22M:015 Mathematics for the Biological Sciences 4 s.h.
22M:016 Calculus for the Biological Sciences 4 s.h.
22M:025 Calculus I 4 s.h.

First-year calculus is encouraged, particularly for those who are interested in pursuing a graduate degree in audiology.

CLINICAL OBSERVATION

Students have the opportunity and are encouraged to obtain 25 hours of supervised clinical observation, a prerequisite for participation in clinical practicums at the graduate level. This requirement is satisfied by completion of independent observations or required observations made for elective departmental courses.

Four-Year Graduation Plan
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: The major requires specific mathematics and science competencies that may be satisfied with courses approved for the General Education Program.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: nine courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 12 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The junior/senior-year program leading to the B.A. with honors in speech and hearing science is open to students who, at the beginning of their junior year, have completed at least 10 s.h. of course work that can be counted toward a major in the department and have earned a g.p.a. of at least 3.50 in all course work at the University.

At any time during their undergraduate study, students who have a cumulative University of Iowa g.p.a. of at least 3.33 and who did not enter the University as honors students may enroll in the University of Iowa Honors Program (contact the University of Iowa Honors Program for more information). Students with a g.p.a. of 3.50 or higher may enter the department's honors program upon recommendation of the departmental honors advisor. To graduate with honors, students must be members of the University of Iowa Honors Program and must complete both 003:097 Honors Seminar and 003:098 Honors Thesis. Students register for 003:097 Honors Seminar in the spring of their junior year and for 003:098 Honors Thesis in both fall and spring of their senior year.

Graduate Programs

The department offers a Master of Arts in speech pathology and audiology, with two emphases: research (general), and professional (speech-language pathology). It also offers the Doctor of Audiology (Au.D.), and a Doctor of Philosophy in speech and hearing science.

The M.A. with research emphasis and the Ph.D. are designed to train scholar-researchers; they do not provide preparation for professional work as speech-language pathologists or audiologists.

The M.A. with professional emphasis and the Au.D. provide training for individuals who wish to do clinical work in speech-language pathology or audiology. Graduates of the M.A. professional emphasis program meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association (ASHA) and for licensure by the State of Iowa. The Au.D. is required for ASHA national certification in audiology. Students preparing for clinical positions in public schools must meet school licensure or certification requirements of the states in which they plan to work. See "M.A. with Professional Licensure" later in this section.

Master of Arts with Research Emphasis

The Master of Arts in speech pathology and audiology with research emphasis (general emphasis) requires a minimum of 38 s.h. of graduate credit. The program is designed for students who intend to pursue a Ph.D. or who seek additional education but do not intend to work professionally in the United States as speech-language pathologists or audiologists. It typically includes a substantial portion of the courses in the M.A. with professional emphasis and Au.D. curricula.

Students in the M.A. research emphasis program are required to complete a thesis and defend their research successfully at a final oral examination.

The program typically requires two years to complete. Specific course work required depends on the student's background and interests.

Master of Arts with Professional Emphasis

The Master of Arts in speech pathology and audiology with professional emphasis in speech-language pathology
requires a minimum of 38 s.h. of graduate credit. The program prepares clinicians in speech-language pathology or audiology to be able to function independently in a variety of clinical settings. Graduates of the program meet all academic and practicum requirements for clinical certification by the American Speech-Language-Hearing Association and for licensure by the State of Iowa. The program is designed to ensure that upon graduation, the student will meet requirements for immediate professional employment.

M.A. students usually have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior that is equivalent to an undergraduate major in speech and hearing science at The University of Iowa.

Before registering in the program, entering M.A. students receive descriptive materials about basic science core courses considered to be required preparation for the M.A. program, and required M.A. clinical core courses for which the department may accept comparable courses taken at the undergraduate level. Decisions about incorporating background course work in these areas are made by the faculty advisor in consultation with the student and the instructors of the basic science or clinical core courses. Entering students must have completed the following courses or their equivalents.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:110</td>
<td>Phonetics: Theory and Applications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:111</td>
<td>Basic Acoustics for Speech and Hearing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:112</td>
<td>Anatomy and Physiology of Speech Production</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>003:113</td>
<td>Introduction to Hearing Science</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>003:116</td>
<td>Basic Neuroscience for Speech and Hearing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:117</td>
<td>Psychology of Language</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or</td>
<td>003:218 Psycholinguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:118</td>
<td>Language Development</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>003:185</td>
<td>Hearing Loss and Audiometry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:025</td>
<td>Elementary Statistics and Inference</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Biology, physics, chemistry, or mathematics courses (must include at least one biology, physics, or chemistry course)</td>
<td>6 s.h.</td>
<td></td>
</tr>
<tr>
<td>Behavioral science or social science courses (must include at least one psychology course)</td>
<td>6 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

Students pursuing the M.A. with professional emphasis must complete at least 4 s.h. of work related to research. This may be accomplished by any combination of enrollment in seminars (2 s.h. each) and/or research hours. Completion of the research hours may consist of work toward a thesis or preparation of a paper involving one or a combination of the following: literature review, prospectus development, and presentation of data. A paper is required at the end of each semester's enrollment. An exception to this requirement can be made in the case of research hours leading to a thesis.

Candidates for an M.A. with professional emphasis in speech-language pathology are not required to complete a thesis, although all students demonstrating research aptitude and interest are encouraged to do so. Students who do not elect the thesis option are required to take final written comprehensive examinations.

A typical M.A. professional emphasis program usually takes two calendar years to complete but may take longer, depending on the student's background and personal interests.

CORE REQUIREMENTS

All students seeking an M.A. with professional emphasis in speech-language pathology must take the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:135</td>
<td>Foundations of Clinical Practice I</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>003:136</td>
<td>Foundations of Clinical Practice II</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>003:137</td>
<td>Foundations of Clinical Practice III</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

In addition, they must take the following courses unless they completed equivalent courses as undergraduates.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:114</td>
<td>Introduction to Voice Disorders</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:115</td>
<td>Structural Disorders</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:116</td>
<td>Basic Neuroscience for Speech and Hearing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:140</td>
<td>Manual Communication</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
Students must take 003:510 Seminar: Introduction to Research in Speech and Hearing (1 s.h.) during the fall semester of their first year.

They must take 003:515 Proseminar (0 s.h.) during the fall and spring semesters of their first year.

Also required are additional semester hours of practicum registration sufficient to meet supervised, direct clinical experience requirements for the Certificate of Clinical Competence of the American Speech-Language-Hearing Association and the Iowa license, and to provide broad, supervised practicum experience.

In addition to the core requirements listed above, all students preparing to be speech-language pathologists must earn a minimum of 12 s.h. from the following.

003:201 Principles of Voice Production  
003:206 Language Disorders in Children 0-18 Yrs  
003:213 Voice Habilitation  
003:222 Speech and Hearing Anatomy (dissection)  
003:228 Stroboscopy  
003:233 Aphasia  
003:236 Swallowing Disorders  
003:237 Cleft Palate and Related Disorders  
003:260 Designing Assistive Devices  
003:282 Phonological Development and Disorders  
003:283 Stuttering  
003:350 Preceptorship in Augmentative Communication  
07E:104 Remedial Methods in Speech and Hearing  

Students also must earn a total of 4 s.h. in 003:590 Research or 4 s.h. in a combination of research and seminar courses.

**M.A. with Professional Licensure**

**M.A. with Licensure to Work Outside Public Schools**

A number of states, including Iowa, require a state license in speech-language pathology or audiology for persons who work in settings outside the public schools. Students who meet the requirements listed below for the M.A. in speech pathology and audiology with professional emphasis also meet the academic requirements for the license in Iowa as well as in most other states. In 2007 the requirements to earn American Speech-Language-Hearing Association national certification in audiology changed. Certification now requires a clinical doctoral degree (Doctor of Audiology) or the equivalent. Students preparing for careers in audiology should consult their advisors.

**M.A. with Public School Licensure**

Students preparing for clinical positions in public schools typically must meet school licensure or certification requirements of the states in which they plan to work. The following criteria meet the requirements for endorsement as speech-language pathologists or audiologists in Iowa and most other states.

- A master's degree with professional emphasis in speech-language pathology or audiology or the equivalent
- Completion of an approved human relations component
- Completion of courses that cover the education of the disabled and the gifted and talented (e.g., exceptional persons, education of the gifted)
- Completion of the requirements in speech-language pathology or audiology and the 20 s.h. professional education sequence, including 07E:104 Remedial Methods in Speech and Hearing and 07E:192 Special Area Student Teaching as a speech-language pathologist or audiologist; course work in the following areas must be completed to meet the professional education sequence:
  - Curriculum (e.g., reading, methods, curriculum development)
  - Foundations (e.g., philosophy of education, foundations of education)
**Educational measurement** (e.g., tests and measurements, measures and evaluations of instruction)

**Educational psychology** (e.g., educational psychology, counseling theories and techniques)

**Special education** (e.g., introduction to special education, exceptional persons, learning disabilities)

**Child development** (e.g., human growth and development, principles and theories of child development, history and theories of early childhood education)

Note: General Education Program courses (e.g., introduction to psychology, sociology, history, literature, and humanities) do not meet the requirements of the professional education sequence.

**Doctor of Audiology**

The Doctor of Audiology (Au.D.) requires 95 s.h. of graduate credit. Individuals who wish to work as audiologists in the United States must hold a clinical doctoral degree or the equivalent.

The four-year Au.D. program is designed for students with an undergraduate degree in speech and hearing science. Au.D. students must complete the following courses. They may be excused from taking courses whose equivalents they completed successfully during undergraduate study.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:016</td>
<td>Calculus for the Biological Sciences (or one semester of calculus)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>003:135</td>
<td>Foundations of Clinical Practice I</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>003:145</td>
<td>Developmental Speech and Language Disorders</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:219</td>
<td>Fundamentals of Laboratory Instrumentation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:224</td>
<td>System and Signal Theory for Speech and Hearing Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:230</td>
<td>Advanced Hearing Science and Speech Perception</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:238</td>
<td>Capstone Requirement</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>003:240</td>
<td>Hearing Aids I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:242</td>
<td>Hearing Aids II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:244</td>
<td>Rehabilitative Audiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:245</td>
<td>Pediatric Audiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:246</td>
<td>Advanced Audiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:247</td>
<td>Medical Audiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:249</td>
<td>Cochlear Implants</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>003:255</td>
<td>Educational Audiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:256</td>
<td>Physiology of Hearing</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>003:290</td>
<td>Auditory Evoked Potentials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:291</td>
<td>Vestibular Assessment and Rehabilitation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:292</td>
<td>Advanced Rehabilitative Audiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>003:311</td>
<td>Clinical Practice in Audiology</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>07P:243</td>
<td>Intermediate Statistical Methods</td>
<td>4 s.h.</td>
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<tr>
<td>or</td>
<td>171:161 Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students also must select at least one of the following electives. With their advisors' consent, they may substitute other University of Iowa course work to satisfy this requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>003:222</td>
<td>Speech and Hearing Anatomy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:526</td>
<td>Seminar: Rehabilitative Audiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>003:537</td>
<td>Seminar: Audiology</td>
<td>2 s.h.</td>
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<tr>
<td>003:538</td>
<td>Seminar: Hearing Science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>07E:104</td>
<td>Remedial Methods in Speech and Hearing</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>068:199</td>
<td>Basic Otolaryngologic Science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>132:180</td>
<td>Fundamental Neurobiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>158:101</td>
<td>Topics in Deaf Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>158:110</td>
<td>Teaching Deaf and Hard of Hearing Students</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Doctor of Philosophy

The Doctor of Philosophy in speech and hearing science requires a minimum of 72 s.h. of graduate credit. The program provides flexible, comprehensive training for scholar-researchers interested in communication processes and their disorders. Students with diverse backgrounds in the natural and behavioral sciences are encouraged to apply and develop their skills in an atmosphere of interdisciplinary research.

The Ph.D. program reflects the broad interests of its multidisciplinary faculty, whose members have diverse backgrounds in speech, language, hearing, engineering, physiology, physics, psychology, linguistics, and bioengineering. Faculty members are committed to an interdisciplinary approach to questions at every level of the speech and language production/perception system.

The purpose of the doctoral program is to provide the integrated knowledge necessary for a productive career in speech-language pathology and audiology, communication science, and related areas.

The department encourages candidates with special interests, goals, or backgrounds to develop individualized programs of study. There is no standard curriculum for the Ph.D.; rather, a program of study is developed by each student in consultation with a faculty committee. The course of study is developed from courses offered by the department, courses in other areas (e.g., physics, engineering, psychology, mathematics, statistics, physiology, neurology, anatomy, and others), and special reading and research experiences.

The following courses are offered by the department of Communication Sciences and Disorders primarily for Ph.D. students. (Students interested in specific areas of research and selected publication citations of the faculty are encouraged to write to the department.)

- 003:201 Principles of Voice Production 3 s.h.
- 003:218 Psycholinguistics 3 s.h.
- 003:219 Fundamentals of Laboratory Instrumentation 3 s.h.
- 003:224 System and Signal Theory for Speech and Hearing Science 3 s.h.
- 003:230 Advanced Hearing Science and Speech Perception 3 s.h.
- 003:251 Biophysics of Speech and Hearing 4 s.h.
- 003:256 Physiology of Hearing 3-4 s.h.
- 003:310 Scientific Writing 3 s.h.
- 003:511 Introduction to Doctoral Research (taken spring of the first year) 1 s.h.

In addition, seminars offered by the department cover a broad range of topics relevant to doctoral study.

Students in the Ph.D. program usually are expected to register for research credit (003:590 Research) during each semester of residence and to register for and participate in 003:515 Proseminar.

Knowledge in each of the areas of hearing, speech, language, mathematics, statistics, computer science, and instrumentation is required of all students. Decisions regarding the extent of this knowledge and how it is obtained (e.g., course work or independent study) are made jointly by the student and the student's faculty committee.

Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project as well as the comprehensive examination. They also must successfully complete and submit a dissertation based on original research.

Admission

The Department of Communication Sciences and Disorders has requirements for admission that supplement those specified by the Graduate College. A brief summary of department requirements is presented below. More detailed information is available from the department's director of graduate studies.

All applicants for admission to graduate study in the Department of Communication Sciences and Disorders must complete the Graduate College application form. In addition, they must complete the department's information form, available from the Department of Communication Sciences and Disorders.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

M.A. and Au.D. Admission

The department bases M.A. admission on applicants' credentials relative to those presented by other applicants for the same term. While an undergraduate g.p.a. above 3.20 does not ensure admission, the department admits few applicants with an undergraduate g.p.a. below 3.20.
Completed applications must be received no later than January 15 for entry the next summer session or fall semester. Later applications are considered only in special situations. Applications for spring semester entry are considered only under special circumstances and only if received no later than the preceding November 1.

**Ph.D. Admission**

Completed applications should be received by February 1 for summer session and fall semester entry and November 1 for spring semester entry. Applicants who want to be considered for graduate appointments must file the admission application by February 1. Applicants usually are notified of action on their admission within six weeks of the application deadline.

**Financial Support**

The following information applies to all financial appointments administered by the department. For more detailed information, contact the Department of Communication Sciences and Disorders director of graduate studies.

Graduate appointments usually begin only in fall semester. Students beginning study spring semester or summer session are considered for appointments for the following fall semester.

Appointment applications must be received by January 15 to ensure consideration for an appointment beginning the following fall semester. Initial appointment offers generally are made between April 1 and June 1; however, the department continues to make offers after this time.

Scores on the Graduate Record Examination (GRE) General Test are required for consideration for financial assistance.

**Facilities**

**Clinical Facilities**

The clinical training program benefits greatly from Iowa City's standing as the principal health center of the state, and from the ready availability of health service facilities for clinical training of students in speech-language pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services include the Wendell Johnson Speech and Hearing Clinic; the division of speech and hearing in the University of Iowa Hospitals and Clinics (UIHC) Department of Otolaryngology--Head and Neck Surgery; UIHC Consolidated Speech and Swallowing Services, which provides services to the Departments of Neurology, Child Psychiatry, and Otolaryngology--Head and Neck Surgery; speech and hearing services in the Center for Disabilities and Development; Pediatrics Regional Child Health Specialty Clinics; and the audiology and speech pathology service in the Veterans Affairs Iowa City Health Care System. Directors of these programs form the Council on Speech Pathology and Audiology at The University of Iowa.

The Wendell Johnson Speech and Hearing Clinic serves the University and the general public. Included in its services are outpatient evaluation and rehabilitation programs for speech, hearing, and language problems; one-week intensive summer programs in stuttering, language development, reading, and aural rehabilitation; and a six-week summer preschool program for hearing-impaired children. These clinical programs give students supervised clinical experience with a wide variety of speech, hearing, and language disorders.

In addition to the clinical training in the Wendell Johnson Speech and Hearing Clinic, training also may be acquired in supervised clinical practice with elementary school children through various state area education agencies; and in supervised clinical practice in speech, language, and hearing services provided by the University of Iowa Hospitals and Clinics Consolidated Speech and Swallowing Services, the Regional Child Health Specialty Clinics, Center for Disabilities and Development, and the Veterans Affairs Iowa City Health Care System.

Public and private departments and programs in addition to those mentioned above often contribute to the cooperative professional training, research, and service programs.

**Research Facilities**

Facilities in the Wendell Johnson Speech and Hearing Center include audiometric testing suites, diagnostic and remediation suites, equipment for diagnosis and therapy, a closed-circuit television system, and laboratories and equipment for acoustic, physiologic, and perceptual studies of speech, and for audiologic, psychoacoustic, and neurophysiologic studies of hearing. Mechanical and electronic shops and trained technical personnel are available for assistance in research instrumentation.

Cooperation with varied departments in the Carver College of Medicine and the College of Dentistry makes additional laboratory facilities available for research on problems in speech and hearing. The participation and cooperation of specialists from various fields, including psychology, child development, education, engineering, statistics, and
Communication Sciences and Disorders Courses

For Undergraduates

003:015 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
Speech, language, auditory behavior as fields of scientific study; major types of speech, hearing, language disorders. Offered fall and spring semesters.

003:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

003:096 Research Practicum 3 s.h.
Individual or small group participation in faculty research projects. Prerequisite: consent of instructor.

003:098 Honors Thesis 2 s.h.
Close work with a faculty mentor. Prerequisite: 003:097.

For Undergraduate and Graduate Students

003:110 Phonetics: Theory and Applications 3 s.h.
Basic concepts: articulatory and acoustic description of speech sound production, dialect variations, language differences; development of phonetic transcription skills with emphasis on English phonetics, clinical applications to developing and disordered speech. Offered fall semesters.

003:111 Basic Acoustics for Speech and Hearing 3 s.h.
Principles of sound, simple harmonic motion, sound pressure and intensity, decibels, complex waves, Fourier analysis, resonance and filters, distortion, transmission of sound. Offered spring semesters. Prerequisite: 029:008 or 029:011.

003:112 Anatomy and Physiology of Speech Production 4 s.h.
Normal anatomy, physiology of structures used to produce speech; principles, methods for instrumental study of speech production. Offered spring semesters. Prerequisite: 003:110. Pre- or corequisite: 003:111 or consent of instructor.

003:113 Introduction to Hearing Science 4 s.h.
Normal auditory process; anatomy and physiology of auditory system; subjective correlates of auditory stimuli. Offered fall semesters. Prerequisite: 003:111 or consent of instructor.

003:114 Introduction to Voice Disorders 2 s.h.
Basic foundations for management of voice disorders. Offered spring semesters. Prerequisite: 003:112.

003:115 Structural Disorders 2 s.h.
Therapy approaches used to treat speech production and swallowing disorders associated with disorders that affect structure and physiology of the speech and swallowing mechanism; basic knowledge necessary for clinical practice by clinicians who do not specialize in management of patients with head and neck cancer, cleft palate, or neurological disorders. Offered fall semesters.

003:116 Basic Neuroscience for Speech and Hearing 3 s.h.
Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered fall semesters. Prerequisite: course in biology or zoology or physiology, or consent of instructor. Same as 103:177.
003:117 Psychology of Language
Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure and context of models of speech perception and production. Offered spring semesters. Prerequisite: 103:100 or consent of instructor. GE: Social Sciences. Same as 103:172.

003:118 Language Development
Models of children's language acquisition; child language/communication development from infancy through school age, in context of current developmental research. Offered spring semesters. Prerequisites: (for 003:118) 031:001 and 103:100 or consent of instructor for undergraduates; consent of instructor for graduate students. Prerequisite: (for 103:176) 103:100 or 103:172 or consent of instructor. GE: Social Sciences. Same as 103:176.

003:119 Clinical Research and Evaluating Treatment Efficacy
Introduction to design and conduct of research and evidence-based clinical practice, observation and measurement, population sampling, group and single-subject research designs, treatment research, data organization and analysis, and presenting research results in graphic and written form; issues concerning research ethics and the protection of human subjects in research; for clinical graduate students in audiology or speech-language pathology.

003:122 Speech Production: Anatomy and Physiology
Anatomy and physiology of the respiratory, phonatory, and articulatory systems and the systems' roles during speech production; approaches to instrumental assessment of speech physiologic events.

003:140 Manual Communication
Training in use of sign systems in manual communication.

003:145 Developmental Speech and Language Disorders
The nature of developmental disorders--basic concepts, including behavioral characteristics, developmental patterns, etiology theories; assessment and intervention principles in phonology, semantics, morphology, syntax. Offered fall semesters. Prerequisites: 003:015, 003:110 or 103:110, 003:112, and 003:118; or consent of instructor.

003:146 Neurogenic Disorders of Language
Language disorders secondary to acquired brain damage in adults; clinical intervention issues. Offered fall semesters. Prerequisites: 003:015, 003:110 or 103:110, 003:112, and 003:116; or consent of instructor.

003:147 Neurogenic Disorders of Speech
Speech disorders secondary to acquired brain damage in adults; clinical intervention issues. Offered spring semesters. Prerequisite: 003:116.

003:165 Communication Disorders and Aging
Introduction to speech, language, and hearing processes and disorders among older adults; survey of characteristics of communication and communication breakdown, remediation, and strategies for improving communication with older adults with communication disorders; primarily for nonmajors and service providers other than speech-language pathologists and audiologists. Offered spring semesters of even years. Same as 153:165.

003:183 Introduction to Stuttering
Theoretical perspectives on the nature of stuttering, including onset and development, basic phenomena, beginning treatment principles. Offered spring semesters. Prerequisite: 003:112.

003:185 Hearing Loss and Audiometry
Introduction to profession of audiology; overview of hearing disorders, evaluation, treatment; basic pure-tone and speech audiometry. Offered fall semesters. Pre- or corequisite: 003:113.

003:186 Problems: Speech/Hearing Processes and Disorders
Prerequisite: consent of instructor.

For Graduate Students

003:135 Foundations of Clinical Practice I
1-3 s.h.
Basic concepts of clinical practice, including models of diagnosis, fundamentals of clinical data collection and measurement, treatment planning, professional writing. Offered fall semesters. Prerequisites: 003:015, 003:110 or 103:110, 003:112, 003:118, and 07P:025, or equivalents; and graduate standing; or consent of instructor. Corequisite: 003:145.

003:136 Foundations of Clinical Practice II
Advanced concepts of clinical practice, including principles of human behavior change, clinical decision making, generalization, transfer and maintenance, models of service delivery, ethical practice, advanced professional writing. Offered spring semesters. Prerequisites: 003:135 and graduate standing, or consent of instructor.

003:137 Foundations of Clinical Practice III
Advanced principles of clinical practice, including risk management, public policy and models of third-party reimbursement, professional issues. Offered fall semesters. Prerequisites: 003:136 and graduate standing.

003:201 Principles of Voice Production
Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters of odd years. Same as 025:201.

003:202 Methods of Teaching Voice
Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as 025:202.

003:204 Voice for Performers
Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Prerequisite: enrollment in Summer Vocology Institute, Denver, Colorado. Same as 025:216, 049:201.

003:206 Language Disorders in Children 0-18 Yrs
Disorders resulting from phonological, semantic, pragmatic, and morphosyntactic deficits; receptive, expressive problems; special assessment and intervention procedures. Offered fall semesters of even years. Prerequisite: 003:145 or equivalent.

003:213 Voice Habilitation
Application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Prerequisites: 003:114 or equivalent, and 003:201. Same as 025:356.

003:218 Psycholinguistics
Theoretical, empirical issues in psycholinguistics; models demonstrating relation of formal language structure to psychological operations used in speech perception and production; laboratory emphasis on paradigmatic research in psycholinguistics. Offered fall semesters. Prerequisite: consent of instructor. Same as 103:218.

003:219 Fundamentals of Laboratory Instrumentation
Electrical circuits, emphasis on application to instrumentation used in speech and hearing; laboratory focus on instrumentation. Offered spring semesters.

003:221 Instrumentation for Voice Analysis
Same as 025:357.

003:222 Speech and Hearing Anatomy
Laboratory course in anatomy of speech and hearing mechanisms; instruction in dissection techniques. Offered summer sessions. Prerequisite: 003:112 or equivalent.

003:224 System and Signal Theory for Speech and Hearing Science
Principles of linear-systems theory applied to speech and auditory research, including system functions, filter properties, convolution, Fourier Series, Fourier transform. Offered fall semesters. Prerequisite: introductory calculus.

003:228 Stroboscopy
How to perform videolaryngoscopy using a rigid scope and applying knowledge of normalcy and pathophysiology; how to interpret findings; describe and report them concisely. Offered summer sessions. Prerequisite: 003:114.

**003:230 Advanced Hearing Science and Speech Perception**  
Perception of speech and other sounds by human listeners, how these perceptual abilities relate to the physiology of the auditory system; perception of speech by hearing-impaired listeners through hearing aids or cochlear implants. Offered spring semesters. Prerequisite: (for 003:230) 003:113 or consent of instructor. Prerequisites: (for 103:230) background in phonetics, speech science, and hearing science; or consent of instructor. Same as 103:230.

**003:233 Aphasia**  
Assessment, diagnosis, and treatment of aphasia and other acquired language and cognition-based communication disorders. Offered spring semesters. Prerequisites: 003:117, and 003:146 or equivalent; or consent of instructor. Corequisite: 003:136.

**003:234 Acquired Cognitive-Communication Disorders**  
Cognitive, neuropsychological, and social aspects of communication and the management of acquired cognitive-communication disorders associated with traumatic brain injury, right hemisphere damage, and neurodegenerative diseases. Prerequisites: 003:116 and 003:146, or consent of instructor.

**003:236 Swallowing Disorders**  
Physiology of normal, abnormal swallowing; assessment, treatment of swallowing disorders in adults, children. Offered fall semesters. Prerequisites: 003:112, 003:115 or equivalent, and 003:116; or consent of instructor.

**003:237 Cleft Palate and Related Disorders**  
Nature, etiologies, principles of treatment of common disorders associated with cleft lip and palate, associated disorders. Offered spring semesters. Prerequisite: 003:115 or equivalent.

**003:238 Capstone Requirement**  
Individual work with a faculty member on audiology topics; final Au.D. project. Offered spring semesters. Prerequisite: consent of instructor.

**003:240 Hearing Aids I**  
Hearing aids, diagnostic procedures; laboratory emphasis on measurement procedures. Offered spring semesters. Prerequisite: 003:185 or consent of instructor.

**003:242 Hearing Aids II**  
Evaluation, verification procedures; emphasis on advanced technologies, strategies. Offered fall semesters. Prerequisite: 003:240 or consent of instructor.

**003:244 Rehabilitative Audiology**  
Theory, procedures for assessment, rehabilitation of speech, hearing, language deficits of people with hearing impairment. Offered spring semesters. Prerequisites: 003:145 and 003:185, or equivalents.

**003:245 Pediatric Audiology**  
Theory, procedures for assessment, rehabilitation of pediatric populations; laboratory emphasis on test administration. Offered fall semesters. Prerequisite: 003:185 or consent of instructor.

**003:246 Advanced Audiology**  
Theory, procedures for assessment of hearing loss in adult and pediatric populations; experience in test administration through supervised laboratory sessions. Offered fall semesters. Prerequisite: 003:185 or consent of instructor.

**003:247 Medical Audiology**  
Genetic, acquired, traumatic pathologies that affect auditory systems; nature, etiology, principles of assessment, treatment. Offered spring semesters of odd years. Prerequisite: 003:185.

**003:249 Cochlear Implants**  
Introduction to cochlear implantation; history of cochlear implantation, introduction to cochlear technology, basics of device programming and trouble shooting, candidacy issues, outcomes in children and adults, auditory rehabilitation specific to cochlear recipients, the auditory brainstem implant, future trends in cochlear implantation. Offered fall semesters. Prerequisites: 003:185 and 003:244.
003:251 Biophysics of Speech and Hearing
Cellular, molecular, and macromechanical description of tissues in the ear and the larynx involved in sound reception and production; basic elements of molecular and cell biology, continuum mechanics, and nonlinear dynamics in the transduction of acoustic waves to tissue vibration to cell response. Offered fall semesters of even years. Prerequisites: two semesters of calculus, basic biology, and physics.

003:255 Educational Audiology
Training in skills necessary for working with the school-age population; case management and aural rehabilitation, amplification and classroom hearing technology, identification and assessment practices, federal legislation that affects services. Offered fall semesters. Prerequisites: 003:185, and 003:244 or equivalent; and 003:240 for Au.D. students.

003:256 Physiology of Hearing
Anatomy of auditory system, cochlear mechanics, electrophysiology of peripheral and central auditory nervous system; laboratory emphasis on physiological techniques for study of ear. Offered spring semesters. Prerequisites: 003:113, 003:224, and consent of instructor.

003:260 Designing Assistive Devices
System design (hardware and software) useful in building augmentative and alternative communication devices for the profoundly impaired; opportunity to build systems for theoretical and/or applied purpose; interdisciplinary, clinical perspectives. Offered summer sessions. Prerequisite: consent of instructor.

003:282 Phonological Development and Disorders
Advanced topics in phonological development and disorders; current theoretical approaches to phonological analysis and typical phonological acquisition applied to assessment and intervention with children who have phonological disorders. Offered spring semesters. Prerequisites: 003:110 or 103:110, 003:118, 003:135, and 003:145; or consent of instructor.

003:283 Stuttering
Issues, approaches to treatment of children, adults. Offered fall semesters. Prerequisite: 003:183 or equivalent. Corequisite: 003:135 or equivalent, or consent of instructor.

003:290 Auditory Evoked Potentials
Introduction to evoked potentials for assessing audiologic function. Offered spring semesters. Prerequisites: 003:219 and consent of instructor.

003:291 Vestibular Assessment and Rehabilitation
Introduction to otoacoustic emissions, vestibular theory, and testing techniques. Offered fall semesters.

003:292 Advanced Rehabilitative Audiology
Current and developing procedures for assessment, habilitation of adults and children with hearing losses. Offered spring semesters. Prerequisite: consent of instructor.

003:301 Practicum: Speech-Language Pathology
Supervised clinical practice. Repeatable. Prerequisite: M.A. professional emphasis. Corequisite: 003:135 or equivalent.

003:302 Practicum: Speech-Language Assessment
Supervised clinical practice involving evaluation of individuals for speech or language impairments. Repeatable. Prerequisites: M.A. professional emphasis and consent of instructor.

003:304 Speech Pathology Student Teaching
Supervised teaching and observation in an area of speech pathology in the elementary schools. Prerequisite: consent of instructor.

003:310 Scientific Writing
Principles of writing for scientific posters, journal articles, grant proposals; effective communication of concepts and data.

003:311 Clinical Practice in Audiology
Varied topics relevant to professional issues in audiology clinical practice; presentations by clinical faculty members and guest speakers. Repeatable. Prerequisites: M.A. professional emphasis or Au.D. enrollment, and consent of instructor.

003:312 Practicum: Hearing Measurement
Evaluation of individuals for hearing impairment and its impact; clinical practice. Repeatable. Prerequisites: M.A. professional emphasis and consent of instructor.

003:314 Audiology Student Teaching
Supervised teaching and observation in an area of audiology in the elementary schools.

003:315 Clinical Rotations in Audiology

003:316 Advanced Externship in Audiology

003:350 Preceptorship in Augmentative Communication
1 s.h.
Approaches to development of alternate modes of communication for individuals with limited oral communication. Offered fall semesters. Prerequisite: consent of instructor.

003:510 Seminar: Introduction to Research in Speech and Hearing
1 s.h.
Philosophy of science; basic principles of research; issues in conducting research; review of research opportunities in the department. Offered fall semesters.

003:511 Introduction to Doctoral Research
1 s.h.
Topics related to development and execution of research; doctoral program, use of library, human and animal subject issues, philosophy of science, use of common research tools, reading and writing research papers, research grant preparation. Offered fall and spring semesters. Prerequisite: consent of instructor.

003:515 Proseminar
0 s.h.
Presentation of research ideas, results by faculty, students. Repeatable.

003:520 Seminar: MA Language
2 s.h.
Research literature related to language. Offered spring semesters of odd years. Repeatable. Prerequisite: consent of instructor.

003:522 Seminar: Speech
2 s.h.
Topics in speech. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.

003:526 Seminar: Rehabilitative Audiology
2 s.h.
Theoretical issues, research literature. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.

003:528 Seminar: Ph.D. Language
2 s.h.
Theoretical issues related to language. Offered spring semesters. Repeatable.

003:530 Seminar: Communication Disorders and Aging
2 s.h.
Emphasis on application of gerontology to speech-language pathology, audiology. Repeatable. Offered summer sessions of even years. Prerequisite: consent of instructor.

003:537 Seminar: Audiology
2 s.h.
Selected topics. Offered spring semesters. Repeatable. Prerequisite: consent of instructor.

003:538 Seminar: Hearing Science
2 s.h.
Selected topics. Offered fall semesters of even years. Repeatable. Prerequisite: consent of instructor.

003:590 Research
Repeatable. Prerequisite: consent of instructor.
Communication Studies

Chair: John Durham Peters
Professors: Leslie Baxter (F. Wendell Miller Professor, Communication Studies/Community and Behavioral Health), Steve Duck (Daniel and Amy Starch Research Chair, Communication Studies/Psychology), Kristine L. Fitch (Communication Studies/International Programs), John Durham Peters (F. Wendell Miller Professor, Communication Studies/International Programs)
Professors emeriti: Samuel L. Becker, David Depew, Bruce E. Gronbeck (A. Craig Baird Professor of Public Address), Hanno Hardt, Robert Kemp, George Klingler, Donovan J. Ochs
Associate professors: Mark Andrejevic, Shelly Campo (Communication Studies/Community and Behavioral Health), Timothy Havens (Communication Studies/African American Studies), Joy Hayes, David Hingstman, Kembrew McLeod
Assistant professors: Jeff Bennett, Rachel McLaren, Keli Steuber, Isaac West, Rita Zajacz
Undergraduate degree: B.A. in Communication Studies
Undergraduate nondegree program: Minor in Communication Studies
Graduate degrees: M.A., Ph.D. in Communication Studies
Web site: http://www.uiowa.edu/~commstud

The Department of Communication Studies focuses on the study of human communication as a social practice. Scholarship and teaching in the department center on the role that human communication processes play in the construction, maintenance, reinforcement, and reformation of various aspects of social, professional, and institutional life.

The department provides a liberal-arts-based undergraduate education that prepares students to meet the complex communication challenges of the 21st century. It provides top-ranked doctoral education and is a national and international leader in research and knowledge dissemination.

The department has three areas of specialization. The rhetoric and public advocacy specialization focuses on how citizens use public argumentation and other rhetorical processes to bring about cultural, social, and political changes. The media studies specialization focuses on modern media in their cultural, economic, historical, political, and social contexts to understand how society and social relations shape and are shaped by media practices. The interpersonal communication and relationships specialization focuses on how the communicative practices of relating in everyday life construct, shape, sustain, and change who people are as individuals, as well as the quality of their lives.

The Department of Communication Studies encourages exploration of the practical, political, social, and aesthetic dimensions of symbolic exchange and awareness of the relationships among these dimensions. The department has produced many influential scholars and artists and has been a hub for the intersection of programs and projects of the University and other institutions.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in communication studies. First-year students interested in pursuing a degree in communication studies are advised at the Academic Advising Center. Students who have earned 30 s.h. or more and who have a cumulative (University of Iowa and transfer) g.p.a. of at least 2.60 can declare the major and are advised in the department by the communication studies academic counselor.

Bachelor of Arts

The Bachelor of Arts in communication studies requires a minimum of 120 s.h., including 30 s.h. of work for the major. Students must complete the College of Liberal Arts and Sciences General Education Program.

The curriculum is designed to encourage learning that progresses from a basic understanding of communication as symbolic action to intermediate and advanced courses that emphasize four approaches to communication: the practice of communication, the context of communication, communication research and criticism, and communication theory. Students may choose to focus on specific areas of the field in order to build creative combinations of course work that suit their individual learning and career goals.

Students may count up to 50 s.h. of communication studies course work toward the degree. Guided Independent Study and transfer courses may be accepted as long as the student meets University of Iowa and College of Liberal Arts and Sciences residency requirements and the department approves the courses; a maximum of 15 s.h. of transfer credit may be counted toward the degree. Students must have a cumulative g.p.a. of at least 2.60 to take most communication studies courses.

Students work with the department academic counselor to develop study plans that meet the requirements of the major. They may check their progress toward the degree by logging on to ISIS (Iowa Student Information Services). Students may discuss their career goals and interests with faculty members.

Students complete the following course work.

Core Concepts

All majors begin their studies with 036:001 Core Concepts in Communication Studies (3 s.h.). This course is
prerequisite to most other major courses. It introduces and builds on introductory concepts and theories and orients
students to the organization and goals of the major.

036:001 Core Concepts in Communication Studies 3 s.h.

Practice

Practice courses focus on communication production and practice. Students acquire practical skills and learn to
recognize and understand the interpersonal, public, or technical communication practices of others.

At least 6 s.h. from these:

036:011 Group Communication 3 s.h.
036:012 Interpersonal Communication 3 s.h.
036:013 Practicum in Debate 1 s.h.
036:014 Elements of Debate 3 s.h.
036:015 Persuasive Communication 3 s.h.
036:016 Business and Professional Communication 3 s.h.
036:017 Theory and Practice of Argument 4 s.h.
036:018 Leadership and Organizational Procedures 2 s.h.
036:019 Organizational Leadership 2-3 s.h.
036:020 Clothing as Nonverbal Communication 3 s.h.
036:021 Oral Interpretation 3 s.h.
036:022 Introduction to Media Production 4 s.h.
036:025 Writing for Television and Radio 3 s.h.
036:028 Communication Studies Internship arr.
036:030 Rhetorical Process 3 s.h.
036:041 Gender Roles and Communication 3 s.h.
036:080 Radio Production 3 s.h.
036:081 Television Production 3 s.h.
036:085 Media Industries and Organizations 3 s.h.
036:094 Topics in Production 3 s.h.
036:105 Workshop in Teaching Communication and Forensics arr.

Context

Context courses explore how communication practices and meanings are shaped by context--for example, historical,
cultural, social, interpersonal, or institutional settings. Context courses provide students with a better understanding of
communication practices useful in professional careers such as business, education, health care, and law.

At least 6 s.h. from these:

036:040 Communication and Conflict 3 s.h.
036:042 Intercultural Communication 3 s.h.
036:043 Rhetoric, Science, and Technology 3 s.h.
036:044 Rhetoric and Public Advocacy 3 s.h.
036:048 The Rise of Electronic Media 3 s.h.
036:051 Politics of Popular Culture 3 s.h.
036:052 Introduction to Health Communication 3 s.h.
036:083 Cultural History of Radio 3 s.h.
036:084 Cultural Approaches to Mass Communication 3 s.h.
036:086 Global Media Studies 3 s.h.
036:087 Culture and Intellectual Property Law 3 s.h.
036:090 Topics in Communication Studies 3 s.h.
036:091 Organizational Communication 3 s.h.
036:093 Rhetoric of War 3 s.h.
036:095 Queer Rhetorics 3 s.h.
036:100 Independent Study arr.
036:101 Honors Workshop 1 s.h.
036:102 Honors Thesis 3 s.h.
036:140 Communication and Relationships 3 s.h.
Research and Criticism

Research and criticism courses emphasize communication study methods and approaches as well as how those methods and approaches are interpreted and evaluated. These courses focus on the application of interpretive schemas and analytical models to communicative practices or bodies of discourse. Students work directly with primary materials such as institutional data, transcripts of conversations, speeches, historical documents, media programs, and performances.

At least 3 s.h. from these:

- 036:060 Communication Inquiry
- 036:061 Persuasion in Society
- 036:062 Feminist Critical Practice
- 036:064 Media, Advertising, and Society
- 036:065 Television Criticism
- 036:068 Popular Music and Culture
- 036:071 Communication and Contemporary Culture
- 036:165 Introduction to Rhetorical Criticism

Theory

Theory courses examine the process of abstracting, modeling, and conceptualizing communicative relationships and interactions. Students learn how scholars have described and explained communication practices as behavior, cultural and social forms and formations, expressions of commonality and difference, mediated discourses, and symbolic interaction. They explore particular bodies of theory and investigate the process of theorizing in communication studies.

At least 3 s.h. from these:

- 036:070 Communication and Everyday Life
- 036:073 Public Argument
- 036:074 Media and Society
- 036:075 Gender, Sexuality, and Media
- 036:076 Race, Ethnicity, and Media
- 036:088 Mass Communication and American Democracy
- 036:089 Nonverbal Communication
- 036:170 Theories of Persuasion
- 036:173 Technoculture and the Information Society
- 036:176 Advanced Relational Theory

Electives

Students earn 9 s.h. of elective credit in advanced courses.

Advanced courses numbered 036:075 and above, including 3 s.h. in courses numbered 036:110 or above

9 s.h.
Internships

Internships enable students to supplement their course work with professional experiences relevant to careers in communication-related fields. The department's internship program is open only to communication studies majors.

To earn academic credit for internships, students must obtain approval for their internship experience and site before they register for 036:028 Communication Studies Internship (arr.). Internship academic credit is awarded for an analytical paper and daily log submitted at the end of the internship and for the number of hours worked. Internships can be completed during fall semester, spring semester, or summer session.

Visit the department's web site for information on communication studies internships.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. Students who have signed the four-year graduation agreement should consult the department for details.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department encourages outstanding undergraduates to take part in the honors program. To graduate with honors in communication studies, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33, join the University of Iowa Honors Program, and fulfill the following course requirements.

036:101 Honors Workshop (seminar offered fall semesters only) 1 s.h.
036:102 Honors Thesis (usually taken final semester before graduation) 3 s.h.

In special cases, independent study course work may be substituted for the Honors Workshop, with the honors officer's permission. Additional course work may be required by the student's honors advisor.

To begin work toward a degree with honors in communication studies, students choose a faculty member to supervise their honors project and act as their honors advisor.

Students who enroll in the honors program are eligible to take courses offered through the University of Iowa Honors Program and to add an honors designation to any other departmental course by completing an agreement with the course instructor for special work in that course.

For detailed information, see Honors Program in Communication Studies on the department's web site.

Minor

The minor in communication studies requires a minimum of 15 s.h. in communication studies courses, including 12 s.h. in courses taken at The University of Iowa numbered 036:040 and above. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include 036:001 Core Concepts in Communication Studies.

Forensics/Debate

Students in the forensics/debate program have the opportunity to participate in on-campus debates, in developmental programs designed to improve speech activities in the state, and as members of competitive intercollegiate debate teams. Forensics scholarships are available. Students interested in debate should enroll in 036:013 Practicum in Debate or 036:014 Elements of Debate.
Graduate Programs

The department offers a Doctor of Philosophy in communication studies with specializations in interpersonal communication and relationships, media studies, and rhetoric and public advocacy. The department offers a Master of Arts to students who have their committee's approval.

Master of Arts

The M.A. in communication studies requires a minimum of 30 s.h. of graduate credit and usually is granted to students in the process of pursuing the Ph.D. All students take 036:200 Introduction to Research (2 s.h.), 036:201 Issues in Teaching (1 s.h.), and at least two courses numbered 200 or above. They also prepare a graduate seminar paper that involves significant original research. For a detailed description of M.A. requirements, see the Communication Studies Graduate Student Handbook.

Doctor of Philosophy

The Doctor of Philosophy requires a minimum of 82 s.h. of graduate credit, including dissertation credit. All students take 036:200 Introduction to Research and 036:201 Issues in Teaching, and earn at least 10 s.h. of dissertation credit in 036:399 Ph.D. Dissertation.

Ph.D. students must successfully complete a qualifying examination during their second or third semester and a comprehensive (pреддиссертация) examination in their major research area during their fifth or sixth semester, and write a substantial scholarly dissertation. The must take a 3 s.h. course in each of the program's three areas of specialization. Students must maintain a cumulative g.p.a. of at least 3.00 throughout the graduate program.

Admission usually is for fall semester entry. Applicants whose materials are received at the department by January 1 receive preference for admission and financial support. Admission decisions are based on undergraduate achievement, letters of reference, Graduate Record Examination (GRE) General Test scores, the statement of purpose, and samples of scholarly work.

Interpersonal Communication and Relationships

The communication and relationships program is centered on theory complemented by strength in quantitative and qualitative research methods. It focuses on scholarly issues that arise from face-to-face, everyday communication practices. It emphasizes personal relationship and family processes, identity construction, persuasion, and culture.

The goal of the program is to produce scholars who possess sophisticated knowledge of theory and methodology, who are careful consumers of theories and methods, and who can develop their own approaches to communication phenomena. The program emphasizes systematic analysis of the forms, functions, and meanings of messages within various contexts. Its broad social-scientific orientation springs from the belief that many methodological approaches are appropriate to studying and building theoretical explanations of communication.

Graduate students typically enter the program to earn a Ph.D. Advisors and committee members work closely with individual students to select courses from communication studies and other University departments and plan teaching and research experiences that will prepare students well for the employment they seek after graduation.

Media Studies

The graduate program in media studies focuses on the interplay of institutions, texts, and audiences in mediated communication systems. Its central aim is to examine modern media—radio, television, advertising, music, new media, and a wide range of other popular cultural expressions—within their historical, social, political, economic, and cultural contexts. It also uses the mass media as sites for asking basic questions about culture, society, politics, and modernity.

Like the department's other graduate programs, media studies has a strong interdisciplinary flavor. Students draw not only on allied areas in the Department of Communication Studies but on fields across the University.

Rhetoric and Public Advocacy

The program in rhetoric and public advocacy is built on foundation courses in classical and 20th-century rhetorical theory and in an overview of 20th-century rhetorical criticism. Courses from a rhetorical perspective include rhetorical theory, rhetorical criticism, visual rhetoric and politics, public address and public culture, studies in argumentation and freedom of speech, work in science and technology as well as academic inquiry, and historical methods. Cognate work of interest to rhetoricians also can be found in interpersonal communication and relationship studies as well as media studies.

The Ph.D. in rhetorical studies is designed to give students a mature grasp of the specialties and perspectives embraced by the field and to develop research competence essential to a life of productive scholarship.

Work in related disciplines--political science, history, sociology, English, cinema and comparative literature,
anthropology, American studies, and journalism—complements rhetorical studies course offerings. Faculty from the Departments of Rhetoric, Political Science, and American Studies cross-reference their courses on rhetorical topics in this program.

The Project on Rhetorics of Inquiry (POROI) offers a certificate program, allowing doctoral students to specialize in the study of how academic fields use argumentative and linguistic strategies to generate and control knowledge. Many doctoral students also do extensive work in media studies or interpersonal communication to improve their range of teaching opportunities and their research skills.

**Admission**

Applicants to graduate programs in communication studies must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Facilities**

The Samuel L. Becker Communication Studies Building is designed to meet the department's research and technological needs.

**Communication Studies Courses**

Courses numbered below 200 are intended primarily for undergraduates; those numbered 200 and above are for graduate students. Graduate students may take 100-level courses for credit, with their committee's approval. Not all courses are offered each semester.

**For Undergraduates**

To register for most undergraduate communication studies courses, students must have earned 30 s.h. and have a cumulative g.p.a. of at least 2.60. However, registration for the following General Education courses is open to all undergraduates, regardless of their grade-point average: 036:017 Theory and Practice of Argument, 036:070 Communication and Everyday Life, and 036:074 Media and Society. Registration in 036:029 First-Year Seminar is open to first- and second-semester students regardless of grade-point average.

**036:001 Core Concepts in Communication Studies**

Introduction to fundamental ideas in communication studies; concepts important for understanding communication in history and today. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit.

**036:002 Workshop in Debate and Forensics**

Public argument on questions of value and policy; opportunities for demonstration and practice in discussion and debate. Corequisite: enrollment in the National Summer Institute in Forensics.

**036:011 Group Communication**

Application of group problem-solving techniques; leadership, group participation; projects in social decision, action. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit.

**036:012 Interpersonal Communication**

Informal social interaction between individuals; evaluation of students' own interpersonal skills. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit.

**036:013 Practicum in Debate**

Specialized research, case construction, argument preparation, and practice for intercollegiate policy debate competition. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and participation in A. Craig Baird Debate Forum.

**036:014 Elements of Debate**

Debate and debate procedures; teaching debate in school settings, directing interscholastic debate programs. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit.
### 036:015 Persuasive Communication
Applications of persuasive communication, persuasive speaking; persuasive messages. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit.

### 036:016 Business and Professional Communication
Basic concepts and skills of communication in workplace settings; interviewing, formal presentations, speeches, team-building, managing difference. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit.

### 036:017 Theory and Practice of Argument
Public argument as practiced in law, social science, politics, other arenas; oral argument. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisite: completion of General Education Program rhetoric component. GE: Quantitative or Formal Reasoning.

### 036:018 Leadership and Organizational Procedures
Rules of order for meetings of committees, clubs, organizations; making and debating motions from the floor; presiding over parliamentary sessions. Offered only through Guided Correspondence Study. Prerequisite: g.p.a. of at least 2.60.

### 036:019 Organizational Leadership
Focus on communication methods, motivation, parliamentary procedure. Offered only through Guided Correspondence Study. Prerequisite: g.p.a. of at least 2.60.

### 036:020 Clothing as Nonverbal Communication
How clothing communicates culture, gender, self-concept, age, occupation, values, status, tastes, sexuality; clothing for international business, children, the elderly; fashion theory. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit. Same as 049:042.

### 036:021 Oral Interpretation
Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: (for 036:021) g.p.a. of at least 2.60 and 30 s.h. of credit. Same as 07E:021.

### 036:022 Introduction to Media Production

### 036:025 Writing for Television and Radio
Basic writing skills for broadcast media. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: 036:001 and g.p.a. of at least 2.60.

### 036:028 Communication Studies Internship
Communication skills, knowledge in work assignments related to students' academic and career interests; full- or part-time, on or off campus. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 or higher, communication studies major with 12 s.h. of credit in communication studies, and consent of instructor.

### 036:029 First-Year Seminar
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

### 036:030 Rhetorical Process
Examination of the variety of ways through which people seek to influence one another; development of practical skills that can be relied on in everyday experiences; development of theoretical concepts for more advanced courses in communication studies. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: 2.60 cumulative g.p.a. and 30 s.h. earned. Same as 010:030.

### 036:040 Communication and Conflict

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Communication Studies
Implications of communication theories, conflict theories; applications to everyday life. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:041 Gender Roles and Communication**  
3 s.h.  
Gender roles and communication processes; function of communication in gender role development. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 131:041.

**036:042 Intercultural Communication**  
3 s.h.  
Relationships among culture-based assumptions, values, thought patterns, communication behavior; theory and practice. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 042:042, 187:042.

**036:043 Rhetoric, Science, and Technology**  
3 s.h.  
Role of technology in contemporary culture; representation of technology in film and advertising, technology's role in the physical and biological sciences, cultural implications of the information revolution. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:044 Rhetoric and Public Advocacy**  
3 s.h.  
Rhetoric of campaigns at national, state, local levels; in election years, discussions with candidates, media representatives; individual investigations. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:048 The Rise of Electronic Media**  
3 s.h.  
Technical, economic, legal development of electronic media in the United States; embedment in social institutions such as family, nation, consumer culture. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:051 Politics of Popular Culture**  
3 s.h.  
Critical cultural approach to study of popular culture (e.g., television shows, movies, music); mainstream media, alternative forms of mass communication. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:052 Introduction to Health Communication**  
3 s.h.  
Research, concepts, and theories on communication about health; interpersonal communication in contexts of provider-patient, family, and social support; mass communication and health, including health communication campaigns, public relations, advertising; how news media and Internet present health information. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:060 Communication Inquiry**  
3 s.h.  
Social scientific methods used to generate knowledge about interpersonal, group, and mediated communication. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:061 Persuasion in Society**  
3 s.h.  
Theories of public persuasion, types of persuasive campaigns and movements in society; rhetorical analysis of advertising, political processes, social unrest. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:062 Feminist Critical Practice**  
3 s.h.  
Feminist approaches to communicative practices. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.

**036:064 Media, Advertising, and Society**  
3 s.h.  
Media advertising in contemporary culture; marketing to ethnic, class, gender groups. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>036:065</td>
<td>Television Criticism</td>
<td>3 s.h.</td>
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<td></td>
<td>Television form and content; roles of industry, audience, and textual conventions in defining the medium. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.</td>
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<tr>
<td>036:068</td>
<td>Popular Music and Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>What makes popular music important for people; music's power to change culture; production, distribution, reception of popular music in cultural and historical contexts. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.</td>
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<td>036:070</td>
<td>Communication and Everyday Life</td>
<td>3 s.h.</td>
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<td>Theory, research on basic skills, processes in everyday communication. Communication studies majors may apply this course to the following area requirement. AREA: Theory. GE: Social Sciences.</td>
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<td>036:071</td>
<td>Communication and Contemporary Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Culture in social, political, and rhetorical terms; how cultural theory is used as an analytical-critical tool; communication--speech, writing, material and embodied practices. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001 and g.p.a. of at least 2.60.</td>
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<td>036:073</td>
<td>Public Argument</td>
<td>3 s.h.</td>
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<td>Theories of argument contexts, practice, strategies in public controversies. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001 and g.p.a. of at least 2.60.</td>
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<tr>
<td>036:074</td>
<td>Media and Society</td>
<td>3 s.h.</td>
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<td></td>
<td>Processes and effects of mass communication; how mass media operate in the United States; how mass communication scholars develop knowledge. Communication studies majors may apply this course to the following area requirement. AREA: Theory. GE: Social Sciences.</td>
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<tr>
<td>036:075</td>
<td>Gender, Sexuality, and Media</td>
<td>3 s.h.</td>
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<td></td>
<td>Media as a site for theorizing gender, sexuality, identity. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001 and g.p.a. of at least 2.60.</td>
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<tr>
<td>036:076</td>
<td>Race, Ethnicity, and Media</td>
<td>3 s.h.</td>
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<td>Principal debates in media criticism about representation, circulation, and commodification of popular images of race and ethnicity. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 129:076.</td>
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<td>036:080</td>
<td>Radio Production</td>
<td>3 s.h.</td>
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<td>036:081</td>
<td>Television Production</td>
<td>3 s.h.</td>
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<td>036:083</td>
<td>Cultural History of Radio</td>
<td>3 s.h.</td>
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<td>Development of radio as a sociocultural system. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:048, and g.p.a. of at least 2.60.</td>
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<td>036:084</td>
<td>Cultural Approaches to Mass Communication</td>
<td>3 s.h.</td>
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<td>Methods of conceiving, observing, and analyzing media artifacts, processes, politics. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:048, 036:074, and g.p.a. of at least 2.60.</td>
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<td>036:085</td>
<td>Media Industries and Organizations</td>
<td>3 s.h.</td>
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<td></td>
<td>Industry economics and organizational practices as contexts for media production. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: 036:001, 036:048 or 036:066 or 036:074, and g.p.a. of at least 2.60.</td>
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<tr>
<td>036:086</td>
<td>Global Media Studies</td>
<td>3 s.h.</td>
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</tbody>
</table>
Development of media systems, content strategies, and audience formations internationally, comparatively. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:048 or 036:064 or 036:065 or 036:074 or 036:075 or 036:076, and g.p.a. of at least 2.60.

036:087 Culture and Intellectual Property Law 3 s.h.
How culture and media are shaped by intellectual property laws. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:074, completion of research and criticism requirement, and g.p.a. of at least 2.60.

036:088 Mass Communication and American Democracy 3 s.h.
Philosophical foundations of American democracy; focus on contemporary issues of news, media and politics, culture, technology, freedom of speech. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001, 036:044 or 036:051 or 036:061 or 036:074 or 036:075 or 036:076, and g.p.a. of at least 2.60.

036:089 Nonverbal Communication 3 s.h.
Theoretical approaches to nonverbal communication as it occurs in everyday context and situations. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001, 036:012 or 036:040 or 036:041 or 036:042 or 036:070, and g.p.a. of at least 2.60.

036:090 Topics in Communication Studies 3 s.h.
Topics vary. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60.

036:091 Organizational Communication 3 s.h.
Contemporary concepts of communication's meaning and function in organizations. Prerequisites: 036:001, 036:012 or 036:016, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:093 Rhetoric of War 3 s.h.
Argumentation and rhetorical strategies for going to war, for opposing war, for managing public opinion during the reverses of war, and for making peace; examples from ancient and modern wars in the light of classical rhetorical theory and as affected by modern media. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:094 Topics in Production 3 s.h.

036:095 Queer Rhetorics 3 s.h.
Queer theory: overview; use in communication venues such as television and film, and in everyday life; development of critical thinking skills in relation to cultural constructions of gender, sexuality, race, and other identity categories. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisite: 036:001. Same as 131:095, 154:095.

036:100 Independent Study arr.
Creative or research project under faculty supervision. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, g.p.a. of at least 2.60, and consent of instructor, advisor, and department chair.

036:101 Honors Workshop 1 s.h.
Preparation for honors thesis prospectus; coordination of student's individual thesis work, introduction to issues in research design, methods. Communication studies majors may apply this course to the following area requirement. AREA: context. Prerequisites: 036:001, g.p.a. of at least 3.33, and honors standing.

036:102 Honors Thesis 3 s.h.
Individual research, writing, or creative production under faculty supervision. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:101, g.p.a. of at least 3.33, and honors standing.

036:105 Workshop in Teaching Communication and Forensics arr.

Methods, materials, progression, evaluation in teaching and supervising students in courses and class activities; opportunities for observation, demonstration, practice in teaching theater, discussion and debate, individual speech, dramatic and forensic events. Prerequisite: g.p.a. of at least 2.60. Same as 07S:178.

036:130 Performing Culture, Language, and Literature 3 s.h.
Performance of self in everyday life; performance in/of literature; performance as an aesthetic act; performance as a way to understand and represent identities, languages and cultures; students participate in performance as a mode of literary and rhetorical interpretation, cultural and political intervention, and artistic-embodied public presentation. Prerequisites: satisfactory completion of rhetoric and General Education literature requirements. Prerequisites: (for 036:130) 2.60 cumulative g.p.a., 036:001, a theory course (036:070 - 036:076), a research and criticism course (036:060 - 036:068), and a context course (036:040 - 036:042). Same as 010:130, 049:160, 160:130.

036:140 Communication and Relationships 3 s.h.
Communication issues that come into play as relationships are established, developed, maintained, dissolved. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, one course from 036:040 to 036:052, 036:070, completion of research and criticism requirement, and g.p.a. of at least 2.60.

036:141 Advanced Organizational Communication 3 s.h.
Organizational theory and trends in the field of organization studies; organizational culture, power, technology, decision making, teamwork, leadership, diversity, socialization, impact of globalization on organizing. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:091, and g.p.a. of at least 2.60.

036:142 Advanced Intercultural Communication 3 s.h.
Culture and intercultural contact examined through positivistic, interpretive, and critical approaches to communication. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:042, 036:070, completion of research and criticism requirements, and g.p.a. of at least 2.60.

036:143 Classical Rhetoric and Greek Culture 3 s.h.
Origins, development of the art of rhetoric from Sophists to Aristotle; significance to Greek culture from fifth to fourth century B.C. Communication studies majors may apply this course to the following area requirement. AREA: Context. Same as 010:131.

036:144 Contemporary Political Rhetoric 3 s.h.
Televised presidential speechmaking and political action, John F. Kennedy to present. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:017 or 036:044 or 036:051 or 036:093, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:145 Studies in Argument 3 s.h.
Advanced topics in argumentation within specialized personal, public, and technical forums; argument strategies, modes of decision making in social disputes. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:017, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:146 Issues in Rhetoric and Culture 3 s.h.
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: (for 036:146) 2.60 cumulative g.p.a., 036:001, and completion of research and criticism and theory requirements. Same as 008:181, 010:160, 048:160, 160:160.

036:147 Family Communication 3 s.h.
Concepts, theories, and research on communication in family relationships; how information can be used to describe and understand communication behaviors in families. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:040 or 036:041, completion of research and criticism and theory requirements, and g.p.a of at least 2.60.

036:150 Cultural History of Advertising 3 s.h.
Evolution of consumer culture in the United States since the mid-19th century. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:074, 036:064 or 036:065 or 036:075 or 036:076, and g.p.a. of at least 2.60.

036:151 Cultural History of Television
Changing structure, content of U.S. television since World War II. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:074, 036:064 or 036:065 or 036:075 or 036:076, and g.p.a. of at least 2.60.

036:152 Latin American Media
History of Latin American media development; debates over U.S. media and cultural imperialism in the region. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:074, 036:064 or 036:065 or 036:075 or 036:076, and g.p.a. of at least 2.60.

036:153 Communication Technologies in History
How media has altered culture, society, and human consciousness throughout the history of civilization; examination of human history and communication mediated by a variety of tools and formats (i.e., language, writing, printing, calendars, clocks, photography, the telegraph, the telephone, the phonograph, film, radio, television, computers, etc.); 21st-century technology and communication; senior-level seminar. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:074, 036:064 or 036:065 or 036:075 or 036:076, and g.p.a. of at least 2.60.

036:155 Visual Rhetoric
Role of visual and material culture in American life; strategic use of images and objects, rather than language, to move audiences to attitude, action. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, 036:051 or 036:065 or 036:074 or 036:093, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:157 Advanced Topics in Communication Studies
Issues or problems in particular communication contexts. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:158 Rhetoric and Past Public Controversy
Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movements/issues. Communication studies majors may apply this course to the following area requirement. AREA: Context. Same as 010:141.

036:159 Special Topics
Topics, issues, and debates about production or representation of popular images of race and ethnicity. Same as 129:176.

036:165 Introduction to Rhetorical Criticism
Rhetorical discourses, situations. Communication studies majors may apply this course to the following area requirement. AREA: Research and Criticism. Prerequisites: 036:001, 036:043 or 036:044 or 036:061, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:170 Theories of Persuasion
Persuasion beyond advertisements, political speeches, and sales pitches; persuasion in interpersonal contexts; theories of persuasion examined from three points of view—psychological, social, cultural. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001, 036:015 or 036:017 or 036:040 or 036:043 or 036:061 or 036:093, completion of research and criticism and theory requirements, and g.p.a. of at least 2.60.

036:173 Technoculture and the Information Society
The Internet and new media in economic, political, and historical context; perspectives from cultural theory, examples from business, popular culture, the arts. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001, 036:074, completion of research and criticism requirements, and g.p.a. of at least 2.60.
036:176 Advanced Relational Theory  
Relational communication as a persuasive activity and a way of knowing in the world; theories of relational communication vis à vis rhetorical theories, theories of knowledge. Communication studies majors may apply this course to the following area requirement. AREA: Theory. Prerequisites: 036:001, 036:040 or 036:041 or 036:070 or 036:089, completion of research and criticism requirements, and g.p.a of at least 2.60.

For Graduate Students

Graduate students also may take 100-level courses for credit, with approval of their committee.

036:200 Introduction to Research  
Communication studies as a field of scholarship; selection of research problems, major lines of research represented in the department, bibliographical tools for scholarship in the field.

036:201 Issues in Teaching  
Continuation of 036:200; issues, practical tasks, and concerns relevant to effective college or university classroom teaching.

036:210 Introduction to Rhetorics of Inquiry  
How connections between discourses that don't seem connected suggest innovative arguments and ways of crossing boundaries between disciplines. Same as 160:200.

036:220 Rhetorical Criticism  
Approaches to rhetorical analysis of communicative artifacts, acts, events; rhetorical-critical essay writing. Same as 010:230.

036:222 Feminist Cultural Studies  

036:223 Deliberation, Advocacy, Civic Engagement  
Practices of public deliberation in governance and civil society; counterpublic sphere discourses.

036:224 Movements and Media  

036:225 Seminar: Social Movements  

036:241 Theories of Mass Communication  
Major concepts, theories, schools of thought in media studies, mass communication.

036:242 Studies and Practices of Audio and Video Production  

036:250 Introduction to Rhetoric of Science  
How science is related to social and political practices, examined by placing philosophical and pedagogical controversies about scientific method into their historical and rhetorical contexts. Same as 160:250.

036:270 Health Communication  
Theories, concepts, research associated with health communication; interpersonal and mass communication approaches. Offered summer sessions. Same as 172:240.

036:299 Graduate Independent Study  

036:301 Classical Rhetoric  

036:311 Modern Rhetoric  
History of modernist rhetorical theory in the 20th century; relationships with philosophy, social and physical sciences, cultural change. Same as 008:268, 160:311.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| 036:312     | Rhetoric and Philosophy                            | 2-4 s.h.
|             | Contemporary philosophical approaches to the study of rhetoric. |
| 036:313     | Rhetoric and Argument Theory                       | 2-4 s.h.
|             | Approaches to study of argumentation, key issues at dispute in contemporary conceptualizations of argument. |
| 036:317     | Current Issues in Rhetoric                         | 3 s.h.  
|             | Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as 008:315, 010:340, 160:340. |
| 036:319     | Practical Criticism                                | 3 s.h.  
|             | Basics of rhetorical criticism; rhetoric as practice or technique; how to read rhetorically; fundamentals (i.e., figuration and tropes, form and genre, voice, style, topoi) and art of rhetorical critique. |
| 036:330     | Reading Group                                      | 1-2 s.h. 
|             | Analysis and discussion of important texts in rhetorical theory and criticism. Repeatable. |
| 036:331     | Studies in Language Theory                         | 2-4 s.h. 
|             | Semiotics, speech acts, philosophy of language; emphasis on their relationship to rhetoric. Same as 160:331. |
| 036:332     | Visual Political Rhetoric                           | 1-4 s.h. 
|             | Theoretical and critical studies of visual political discourse. |
| 036:335     | Proseminar: Contemporary Rhetorical Studies        | 2-4 s.h. 
|             | Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionists, feminist theorists and critics, critics of communication technologies. Same as 160:335. |
| 036:336     | Seminar in Rhetorical Theory                       | 1-4 s.h. 
|             | Topics in history and development of rhetorical theory; theory construction and application to critical practice. Same as 010:600. |
| 036:337     | Seminar: Public Address                            | 1-4 s.h. 
|             | History and criticism of discourse addressed to the public; periods, approaches. |
| 036:339     | Seminar: Rhetoric and Culture                      | 1-4 s.h. 
|             | Cultural theories, their utility in accounting for communication practices. |
| 036:340     | Media and Modernity                                | 3 s.h.  
|             | Survey of classic and contemporary theoretical texts on cultural, social, political, and human consequences of 19th- and 20th-century media. |
| 036:341     | Topics in Mass Communication Scholarship           | 1-3 s.h. 
|             | Theory and research on problems in mass communication. |
| 036:342     | Critical Television Studies                        | 3 s.h.  
|             | Introduction to canonical and contemporary readings in critical television studies; primary questions and theories associated with textual, industrial, ethnographic, and integrated approaches to studying television; how technological, economic, and cultural changes have altered television and how it is studied. |
| 036:346     | The Public Sphere                                  | 3 s.h.  
|             | Theories, intellectual history, critics, contemporary issues of the public sphere. |
| 036:347     | Nationalism as a Communication Process             | 3 s.h.  
|             | Nation building and construction of national identity as a problem in communication history and theory; the nation as a community constructed through discourse, role of the state and other social forces in creating and deploying nationalist discourse. |
| 036:349     | Visual Advocacy                                    | 3 s.h.  


036:350 Seminar: Mass Communication  
Topics vary.  

036:351 Global Media Seminar  
Theories and processes of globalization and the cultural implications of media globalization; local responses to globalizing processes with reference to questions of modernity and national/transnational identity.  

036:352 Seminar: Media Theory  
Topics vary.  

036:353 Seminar: Intellectual Property  
Areas of cultural production that have been affected by intellectual property law; notions of authorship and ownership that lie at the heart of intellectual property law, how they affect varied areas of cultural production. Same as 160:353.  

036:370 Quantitative Research Methods  
Primary methods for conducting quantitative research on interpersonal and group communication.  

036:371 Communication Theory  
Survey of primary theories of interpersonal, cultural, group, and organizational communication.  

036:372 Ethnographic Methods  
Qualitative methods used by ethnographers and interpretive researchers, including participant observation, field interviewing.  

036:373 Persuasion Theory and Research  
Traditional social scientific approaches to research and theory; development of a cultural perspective on persuasion.  

036:374 Relational Communication Theory and Research  
Communication in initiation, development, maintenance, breakdown, and repair of social and personal relationships.  

036:375 Ethnography of Communication  
Research and theory on face-to-face communication, from ethnography of communication perspective.  

036:376 Family Communication  
Theory and research on communication among and between family members (parents, children, marital partners, siblings); quantitative and qualitative research.  

036:377 The Dark Side of Interpersonal Communication  
Communication in dysfunctional, dissatisfying, and otherwise unpleasant aspects of familial, personal, and social relationships; jealousy, deception, infidelity, nagging and complaining, verbal and physical abuse; relational communication’s dark side, in which behavior viewed as dysfunctional may actually be functional, and behavior viewed as functional may be dysfunctional.  

036:378 Critical Ethnography  
How power relations constitute the work of ethnographic research; ethnography as a rhetorical form--how ethnographic inscription renders self, other, culture, and the world intelligible in ways that reinscribe and/or challenge dominant social relations; axes of power such as race, class, gender, sexuality, and nation within postcolonial, feminist, and antiracist approaches to ethnographic/autoethnographic theory and praxis; negotiating researcher privilege and epistemic violence; crisis of representation. Same as 010:332, 160:332.  

036:379 Health Communication Campaigns  
Design and analysis of health campaigns; theory, practice, methods; mass media, community, organization, and interpersonal approaches. Offered spring semesters. Same as 172:246.  

036:380 Seminar: Dialogic Communication  
Dialogic approaches to communication, including Bakhtin and Buber.  

036:381 Seminar: Topics in Communication Research  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>036:383</td>
<td>Seminar: Constructs, Communication, and Identity</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Concepts of identity and sociality in George Kelly’s Personal Construct Theory; their connection to theories of rhetoric, especially Burke, and social community, especially Mead.</td>
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<tr>
<td>036:387</td>
<td>Communication, Cognition, and Emotion</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Theoretical and empirical work that integrates communication, cognition, emotion; role of social cognition in communication, theories of emotion, types of emotional experiences; approaches to understanding emotion from perspectives in psychology, social cognition, communication; emotion-related issues such as influence of gender, effects of mood.</td>
<td></td>
</tr>
<tr>
<td>036:395</td>
<td>Research Practicum</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Individual projects.</td>
<td></td>
</tr>
<tr>
<td>036:399</td>
<td>Ph.D. Dissertation</td>
<td>arr.</td>
</tr>
</tbody>
</table>
Undergraduate Programs

The department offers a Bachelor of Arts, a Bachelor of Science, and a minor in computer science and in informatics. Both the B.A. and B.S. provide students with the necessary training for employment in careers such as software development and information management. Students who do not want to pursue a computer science career should consider earning a minor in computer science to acquire fundamental knowledge of the use and applications of computers. The department encourages students in both B.A. and B.S. programs to consider earning a second major, certificate, or minor.

Undergraduates majoring in computer science develop competence in programming principles and methodologies, problem-solving techniques, mathematics, and computer systems. Computer science training is critical for many careers in science, engineering, and business.

Qualified undergraduate students who plan to earn the Master of Computer Science degree may apply for the joint Bachelor of Arts/Master of Computer Science program or the joint Bachelor of Science/Master of Computer Science program. The joint programs allow students to count a limited amount of advanced credit toward requirements for both the undergraduate and the graduate degree, enabling them to earn both degrees in five years, less time than is required to earn them separately.

Informatics brings the computational sciences together with the arts, the humanities, and the biological, health, information, natural, and social sciences in an interdisciplinary effort to solve problems. It uses algorithmic techniques and the power of computing to acquire and manipulate data, extract new knowledge, and ultimately examine existing and new problems from broad perspectives.

The informatics major combines fundamental and practical computing knowledge with a choice of cognate areas from the liberal arts and sciences, providing students with the necessary background and specialized skills to work at the interface of computing and another discipline. The major also provides good preparation for graduate study in a variety of disciplines.

Students may declare a major in computer science or in informatics and be admitted to the department's B.A. or B.S. programs at any time on or after admission to the University. Students are admitted to the informatics B.A. program without a chosen cognate area; they may declare a cognate at any time. After admission to the major, computer science students must maintain a g.p.a. of 2.00 or higher in all course work in order to graduate; informatics students must maintain a g.p.a. of at least 2.00 in the informatics core, the statistics course, and the elective(s).

All students are advised at the Academic Advising Center until they have completed 22C:019 Discrete Structures (computer science students) or 22C:080 Programming for Informatics (informatics students). Computer science students being advised at the advising center also may consult with computer science faculty members; informatics students being advised at the center also should consult with the department's informatics program director.

Transfer students who have taken a course approved as equivalent to a required computer science or informatics course are exempt from that course. Transfer course grades are included in the computer science or informatics grade-point average.

Students should consult the Department of Computer Science web site or visit the department's office for information about general policies, elective areas, and internships, scholarships, and student groups, such as the University's chapter of the Association for Computing Machinery (ACM) and Women in Informatics and Computer Science (WICS).

Advanced Placement

The Computer Science Advanced Placement Program test can be used to gain credit for elective semester hours. See Advanced Placement Credit Policy under Prospective Students on the Department of Computer Science web site.
Early Admission to the Graduate College

Undergraduate computer science or informatics students who have 6 s.h. or less to earn toward graduation may apply for early admission to the Graduate College. Early admission allows students in their final undergraduate semester to take courses for graduate credit in addition to the courses they need to complete their bachelor's degrees.

Bachelor of Arts in Computer Science

The Bachelor of Arts in computer science requires a minimum of 120 s.h., including at least 41 s.h. of work for the major. The B.A. program is designed for students who wish to gain considerable knowledge in computer science and have flexibility in selecting electives. Students preparing for careers in the computing field are encouraged to supplement the base requirements with additional computer science courses. The program's flexibility makes it suitable for combination with other majors.

All students must complete the College of Liberal Arts and Sciences General Education Program. Students who are enrolled in the B.A. program but who might switch to the B.S. program should choose their General Education natural science courses carefully; see "Natural Science Sequences" under "Bachelor of Science," below.

The B.A. major in computer science requires the following core courses. They may not be taken pass/nonpass. Students also must take one advanced computer science elective.

**COMPUTER SCIENCE CORE**

All of these:

- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22C:019 Discrete Structures 3 s.h.
- 22C:021 Computer Science II: Data Structures 4 s.h.
- 22C:022 Object-Oriented Software Development 4 s.h.
- 22C:031 Algorithms 3 s.h.
- 22C:111 Programming Language Concepts 3 s.h.

One of these:

- 22C:060 Computer Organization 3 s.h.
- 055:035 Computer Architecture and Organization 3 s.h.

One of these:

- 22C:112 Operating Systems 3 s.h.
- 22C:113 Introduction to Systems Software 3 s.h.
- 22C:118 Introduction to Networks and Their Applications 3 s.h.
- 22C:169 Computer Security 3 s.h.

**MATHEMATICS CORE**

Calculus I--one of these:

- 22M:025 Calculus I 4 s.h.

Calculus II--one of these:

- 22M:026 Calculus II 4 s.h.
- 22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.

Linear algebra/probability and statistics--one of these:

- 22M:027 Introduction to Linear Algebra 4 s.h.
- 22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.
ADVANCED ELECTIVES

Bachelor of Arts students must earn at least 3 s.h. in advanced electives.

- 22C:072/22M:072 Elementary Numerical Analysis 3 s.h.
- 22C:096 Topics in Computer Science (with department approval) arr.
- 22C:099 Honors in Computer Science or Informatics (may be counted once as an advanced course) arr.
- Any 100-level computer science course numbered above 22C:110

With department approval, students may count most 22C courses numbered above 200 as advanced courses.

Bachelor of Science in Computer Science

The Bachelor of Science in computer science requires a minimum of 120 s.h., including at least 63 s.h. of work for the major. The B.S. program is more rigorous than the B.A. and is designed to provide in-depth training for students who may pursue graduate work in computer science. However, the choice between the B.A. or the B.S. should be dictated by students' personal career goals. The B.S. is not required for graduate study, and many students not interested in graduate study may choose the B.S. to enhance their skills and job prospects.

All students must complete the College of Liberal Arts and Sciences General Education Program. When chosen carefully, courses that fulfill the General Education Program natural sciences requirement also satisfy the Department of Computer Science natural science requirement (see "Natural Science Sequences," below).

B.S. students complete all requirements for the B.A. major in computer science. They also complete an additional mathematics course, a course on computation theory, another computer science elective, two technical electives, and the natural science requirement. These courses cannot be taken pass/nonpass.

COMPUTER SCIENCE CORE

All of these:

- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22C:019 Discrete Structures 3 s.h.
- 22C:021 Computer Science II: Data Structures 4 s.h.
- 22C:022 Object-Oriented Software Development 4 s.h.
- 22C:031 Algorithms 3 s.h.
- 22C:111 Programming Language Concepts 3 s.h.

One of these:

- 22C:060 Computer Organization 3 s.h.
- 055:035 Computer Architecture and Organization 3 s.h.

One of these:

- 22C:112 Operating Systems 3 s.h.
- 22C:113 Introduction to Systems Software 3 s.h.
- 22C:118 Introduction to Networks and Their Applications 3 s.h.
- 22C:169 Computer Security 3 s.h.

MATHEMATICS CORE

Calculus I—one of these:

- 22M:025 Calculus I 4 s.h.

Calculus II—one of these:

- 22M:026 Calculus II 4 s.h.
- 22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
Linear algebra:
22M:027 Introduction to Linear Algebra 4 s.h.

Probability and statistics--one of these:
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
22S:120 Probability and Statistics 4 s.h.
Another probability and statistics course with a calculus prerequisite, approved by a computer science advisor

ADVANCED ELECTIVES

Bachelor of Science students must earn at least 6 s.h. in advanced electives.

22C:072/22M:072 Elementary Numerical Analysis 3 s.h.
22C:096 Topics in Computer Science (with department approval) arr.
22C:099 Honors in Computer Science or Informatics (may be counted once as an advanced course) arr.
Any 100-level computer science course numbered above 22C:110

With department approval, students may count most 22C courses numbered above 200 as advanced courses.

COMPUTATION THEORY

One of these:
22C:131 Limits of Computation 3 s.h.
22C:135 Theory of Computation 3 s.h.

TECHNICAL ELECTIVES

Bachelor of Science students must earn 6 s.h. in technical electives. Advanced elective courses in computer science or in any other department, approved by an advisor, can be counted as technical electives. For a list of approved technical electives, see Technical Electives for the B.S. under Courses on the Department of Computer Science web site.

NATURAL SCIENCE SEQUENCES

For the B.S., students take two or more courses in a sequence (totaling at least 7 s.h.) in a cognate area of natural science. The natural science sequence is intended to enhance the student's perspective by providing a deeper understanding of the scientific method. Typically, it consists of a sequence of courses taken in the same science department. Students often choose courses that also fulfill the General Education Program natural sciences requirement. Some possible choices are listed below; the department chair may approve others.

CLEP/APP credit may be used to satisfy part or all of the natural science requirement only if the appropriate science department at The University of Iowa accepts the credit as equivalent to one or more of the specific courses listed below.

Astronomy
029:061 General Astronomy I 4 s.h.
029:062 General Astronomy II 4 s.h.

Biology/Chemistry
002:010 Principles of Biology I 4 s.h.
002:011 Principles of Biology II 4 s.h.
004:011 Principles of Chemistry I 4 s.h.
Chemistry

004:011 Principles of Chemistry I 4 s.h.
004:012 Principles of Chemistry II 4 s.h.

Geography

044:003 Introduction to Earth Systems Science 4 s.h.
044:005 Foundations of GIS 3 s.h.

Geoscience

012:003 Earth History and Resources 4 s.h.
or
012:005 Introduction to Geology 4 s.h.
012:008 Introduction to Environmental Science 3-4 s.h.

Physics

One of these sequences:
029:027-029:028 Physics I-II 8 s.h.
029:081-029:082 Introductory Physics I-II (recommended) 8 s.h.

Bachelor of Arts, Bachelor of Science in Informatics

The Bachelor of Arts in informatics requires a minimum of 120 s.h., including at least 43-50 s.h. of work for the major. The Bachelor of Science in informatics requires a minimum of 120 s.h., including at least 53-55 s.h. of work for the major. Both majors combine informatics course work that provides a strong foundation in computing with course work in a cognate discipline. Required credit for the major depends on the choice of cognate area.

The Bachelor of Arts major offers the cognate areas of fine and applied arts (art, music), human-computer interaction, health sciences, linguistics, social sciences (economics, geography, sociology), and individualized cognates.

The Bachelor of Science major offers the cognate areas of bioinformatics and individualized cognates.

All informatics students complete the informatics core, one (B.A.) or two (B.S.) electives, a statistics course, and a set of courses in their chosen cognate area. Students also must complete the College of Liberal Arts and Sciences General Education Program.

Students are expected to possess an appropriate high school background in mathematics.

INFORMATICS CORE

The informatics core consists of six required computing courses (at least 18 s.h.) that emphasize data manipulation, databases, and networking. It provides more applications-oriented content than the traditional computer science curriculum yet is designed to offer students a sound basis in underlying computer sciences themes and techniques.

One of these:
22C:080 Programming for Informatics 4 s.h.
22C:104 Introduction to Informatics 3 s.h.

All of these:
22C:005 Introduction to Computer Science 3 s.h.
22C:082 Human-Computer Interaction 3 s.h.
22C:084 Databases for Informatics 3 s.h.
22C:086 Networking and Security for Informatics 3 s.h.
22C:094 Informatics Project 3 s.h.
INFORMATICS ELECTIVES

B.A. students must complete at least one course (3 s.h.) and B.S. students must complete at least two (6 s.h.) from a list of approved computing informatics electives. In addition to the courses listed below, students may have additional choices from the Department of Electrical and Computer Engineering, the Department of Management Sciences, and the School of Library and Information Science; consult the informatics program director for additional choices.

22C:096 Topics in Computer Science (section approved by advisor) 3 s.h.
22C:109 Programming Languages and Tools (section approved by advisor) 3 s.h.
A computer science course numbered above 22C:110 3 s.h.

STATISTICS COURSE

B.A. and B.S. students must complete one introductory statistics course. Some cognates require a specific statistics course or an alternative statistics course not on this list (e.g., 034:010 Quantitative Data Analysis for the human-computer interaction cognate). Students should consult with their advisor to choose a statistics course appropriate for their cognate area.

One of these (3-4 s.h.):

22S:008 Statistics for Business 4 s.h.
22S:025 Elementary Statistics and Inference 3 s.h.
22S:030 Statistical Methods and Computing 3 s.h.
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
22S:101 Biostatistics 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
22S:120 Probability and Statistics 4 s.h.

Bachelor of Arts Cognates

Detailed requirements for each cognate are listed on the Department of Computer Science web site.

ART

The informatics major with an art cognate requires 46 s.h. of work for the major, including 21 s.h. in cognate courses. Students learn about the design and maintenance of Web services, applications of modern computerized artistic tools, and benefits and limitations of computers as a digital medium. They also gain insight into computerized tool design that is guided by knowledge of an artist's requirements. The art cognate may lead to careers in web development, technology coordination for artistic productions, development of digital artistic tools, and artistic or technical development for entertainment companies. Cognate courses are primarily in art history, design, elements of art, and photography.

All of these:

01A:003 Basic Drawing 3 s.h.
01D:028 Graphic Design I 3 s.h.
01D:082 Introductory Computer Graphic Design 3 s.h.

Two of these:

01H:001 Art and Visual Culture 3 s.h.
01H:002 Arts of Africa 3 s.h.
01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
01H:004 Masterpieces: Art and Cultural Paradigms 3 s.h.
01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:007 Writing About the Visual Arts 3 s.h.
01H:008 Themes in Global Art 3 s.h.
01H:010 Tutorial for Majors: Art History as a Discipline 3 s.h.
01H:016 Asian Art and Culture 3 s.h.
01H:021 Introduction to the Art of West Africa 3 s.h.
01H:022 Introduction to the Art of Central Africa 3 s.h.
At least 6 s.h. from these; 3 s.h. must be 100-level:

- 01D:064 Introduction to Computer-Aided Design for 3-D Design 3 s.h.
- 01D:128 Computer Graphic Design 3 s.h.
- 01D:133 Graphic Design II 3 s.h.
- 01L:040 Introduction to Digital Imaging 3-4 s.h.
- 01L:140 Digital Imaging 3-4 s.h.

**ECONOMICS**

The informatics major with an economics cognate requires at least 48 s.h. of work for the major, including 24 s.h. in cognate courses, which are primarily from economics.

All of these:

- 22M:017 Calculus and Matrix Algebra for Business 4 s.h.
- 06E:001 Principles of Microeconomics 4 s.h.
- 06E:002 Principles of Macroeconomics 4 s.h.
- 06E:104 Microeconomic Theory 3 s.h.
- 06E:105 Macroeconomics 3 s.h.

Two of these:

- 06E:111 Personnel Economics 3 s.h.
- 06E:113 Health Economics 3 s.h.
- 06E:117 Money, Banking, and Financial Markets 3 s.h.
- 06E:119 Policy Analysis 3 s.h.
- 06E:125 Global Economics and Business 3 s.h.
- 06E:129 Economic Growth and Development 3 s.h.
- 06E:133 Environmental and Natural Resource Economics 3 s.h.
- 06E:135 Regional and Urban Economics 3 s.h.
- 06E:141 Industry Analysis 3 s.h.
- 06E:145 Transportation Economics 3 s.h.
- 06E:158 American Economic History 3 s.h.
- 06E:160 Household Finance 3 s.h.
- 06E:164 Economies in Transition 3 s.h.
- 06E:165 Sports Economics 3 s.h.
- 06E:169 Introductory Topics in Economics arr.
- 06E:171 Antitrust Economics 3 s.h.
- 06E:172 Law and Economics 3 s.h.
- 06E:173 International Economics 3 s.h.
- 06E:174 Monetary Economics 3 s.h.
- 06E:175 Labor Economics 3 s.h.
- 06E:176 Public Sector Economics 3 s.h.
- 06E:177 Industrial Organization 3 s.h.
- 06E:179 History of Economic Thought 3 s.h.
06E:183 Natural Resource Economics 3 s.h.
06E:184 Introduction to Econometrics 3 s.h.
06E:187 Mathematical Economics 3 s.h.
06E:189 Advanced Topics in Economics arr.

GEOGRAPHY

The informatics major with a geography cognate requires 48 s.h. of work for the major, including 23 s.h. in cognate courses, which are primarily from geography.

All of these:
044:001 Introduction to Human Geography 4 s.h.
044:003 Introduction to Earth Systems Science 4 s.h.
044:005 Foundations of GIS 3 s.h.

One of these:
044:010 The Contemporary Global System 4 s.h.
044:011 Population Geography 3 s.h.
044:015 Introduction to Political Geography 3 s.h.
044:019 Contemporary Environmental Issues 3 s.h.
044:030 The Global Economy 3 s.h.
044:035 World Cities 3 s.h.

One of these:
044:110 GIS for Environmental Studies: Introduction 3 s.h.
044:112 Mapping American Cities and Regions 3 s.h.
044:180 Field Methods in Physical Geography 2-4 s.h.
044:181 Field Methods: Mapping and Mobile Computing 3 s.h.

Two of these:
044:105 Introduction to Environmental Remote Sensing 3 s.h.
044:110 GIS for Environmental Studies: Introduction 3 s.h.
044:112 Mapping American Cities and Regions 3 s.h.
044:113 Principles of Geographical Information Systems 3 s.h.
044:125 Environmental Impact Analysis 4 s.h.
044:128 GIS for Environmental Studies: Applications 3 s.h.
044:136 Planning Livable Cities 3 s.h.
044:137 Health and Environment: GIS Applications 3 s.h.
044:139 Spatial Analysis and Location Models 3 s.h.
044:145 Advanced Geographic Remote Sensing 4 s.h.

HEALTH SCIENCES

The informatics major with a health sciences cognate requires 50 s.h. of work for the major, including 25 s.h. in cognate courses. The health sciences cognate is intended for students interested in applications of computing to the health sciences. It may lead to careers in medical research or hospital settings and to graduate-level professional degree programs in public health or to graduate study in health or medical informatics. Cognate courses are from anatomy and cell biology, biology, chemistry, health and sport studies, nursing, and psychology.

One of these:
002:002 Introductory Animal Biology 4 s.h.
002:010 Principles of Biology I 4 s.h.

One of these:
### General Chemistry I
- 004:007 General Chemistry I: 3 s.h.
- 004:011 Principles of Chemistry I: 4 s.h.

### Principles of Chemistry I
- 004:011 Principles of Chemistry I: 4 s.h.

### Human Anatomy
- 027:053 Human Anatomy: 3 s.h.
- 060:110 Principles of Human Anatomy: 3 s.h.

### Health and Human Development
- 028:075 Health in Everyday Life: 3 s.h.
- 028:141 Health Promotion Theory and Practice: 3 s.h.
- 028:145 Health Promotion Processes: 3 s.h.
- 031:001 Elementary Psychology: 3 s.h.

### Developmental Science
- 031:014 Introduction to Developmental Science: 3 s.h.
- 096:030 Human Development and Behavior: 3 s.h.

### Human-Computer Interaction
The informatics major with a cognate in human-computer interaction requires a minimum of 45 s.h. of work for the major, including 20-23 s.h. in cognate courses. The cognate is intended for students interested in designing useful and usable technologies. It can lead to careers in interaction design, web design, implementation of user interfaces and evaluation of human-computer interactions, as well as provide valuable skills for graduate studies in human-computer interaction.

The cognate's courses are drawn largely from psychology, sociology, and industrial engineering. Four required courses include foundational aspects of psychology or sociology, an examination of basic human abilities and performance relevant to information technology use, and an introduction to research topics in human-computer interaction.

Students must complete either the psychology area or the sociology area.

#### Psychology
Students who choose the psychology area must satisfy the statistics requirement for the informatics core by taking 22S:008 Statistics for Business, 22S:025 Elementary Statistics and Inference, 22S:101 Biostatistics, or 22S:102 Introduction to Statistical Methods. The psychology area requires the following courses.

All of these (14 s.h.):
- 031:002 Biological Psychology: 4 s.h.
- 031:010 Research Methods in Psychology: 4 s.h.
- 031:016 Introduction to Cognitive Psychology: 3 s.h.
- 22C:196 Topics in Computer Science (topic must be human-computer interaction): 3 s.h.

Two of these (6 s.h.):
- 031:014 Introduction to Developmental Science: 3 s.h.
- 031:015 Introduction to Social Psychology: 3 s.h.
- 031:123 Psychology of Learning: 3 s.h.
- 031:133 Sensation and Perception: 3 s.h.

#### Sociology
Students who choose the sociology area must satisfy the statistics requirement for the informatics core by taking 034:010 Quantitative Data Analysis. The sociology area requires the following courses.

All of these (12-13 s.h.):
- 034:001 Introduction to Sociology Principles: 3-4 s.h.
034:009 Sociological Theory 3 s.h.
034:011 Research Methods 3 s.h.
22C:196 Topics in Computer Science (topic must be human-computer interaction) 3 s.h.

Three of these (9-10 s.h.):

034:020 Principles of Social Psychology 3-4 s.h.
034:125 Small Group Analysis 3 s.h.
056:144 Human Factors 3 s.h.
056:147 Ergonomics 3 s.h.
056:148 Human-Centered System Design 3 s.h.

LINGUISTICS

The informatics major with a linguistics cognate requires 46 s.h. of work for the major, including at least 21 s.h. in cognate courses. Linguistics, the scientific study of human languages, is directly related to psychology, anthropology, and computer science as well as to more applied fields such as second language acquisition or speech and hearing science. The cognate focuses on computational representations of syntax and semantics for processing natural language. Cognate courses are drawn primarily from linguistics.

All of these:

103:100 Introduction to Linguistics 3 s.h.
103:110 Articulatory and Acoustic Phonetics 3 s.h.
103:111 Syntactic Analysis 3 s.h.
103:112 Phonological Analysis 3 s.h.
103:140 Introduction to Computational Linguistics 3 s.h.

Language history--one of these:

103:131/08L:131 History of the English Language 3 s.h.
103:139/039:139 Chinese Historical Phonology 3 s.h.

Old language--one of these:

008:141 Old English Beowulf 3 s.h.
103:132/008:140 Elementary Old English 3 s.h.
20E:110/039:110 First-Year Sanskrit: First Semester 4 s.h.
20E:111/039:111 First-Year Sanskrit: Second Semester 4 s.h.
20E:121/039:112 Second-Year Sanskrit: First Semester 3 s.h.
20E:122/039:113 Second-Year Sanskrit: Second Semester 3 s.h.
20G:001 Classical and New Testament Greek I 5 s.h.
20G:002 Classical and New Testament Greek II 5 s.h.
20G:011 Second-Year Greek I 3 s.h.
20G:012 Second-Year Greek II 3 s.h.
20L:001 Elementary Latin I 5 s.h.
20L:005 Accelerated Latin 3-5 s.h.
20L:002 Elementary Latin II 5 s.h.
20L:011 World of Cicero 3 s.h.
20L:012 Golden Age of Roman Poetry 3 s.h.

MUSIC

The informatics major with a music cognate requires 48 s.h. of work for the major, including 23 s.h. in cognate courses. The music cognate is intended for students interested in audio recording, manipulation of sound, and digital media. It may help students prepare for careers in the entertainment industry. Cognate courses are primarily from the music, with some from cinema and comparative literature and from theatre arts. Entering students must possess basic musicianship skills; an audition may be required for admission.

All of these:

025:001 Fundamentals of Music for Majors 3 s.h.
025:002 Musicianship and Theory I 4 s.h.
Students who plan to take 025:002 Musicianship and Theory I or 025:003 Musicianship and Theory II must take the music theory diagnostic examination, which is administered on the Sunday before fall semester classes begin. See Music Theory Diagnostic Exam on the School of Music web site for more information.

One of these:

- 025:103 World Music 3 s.h.
- 025:104 Music of Latin America and the Caribbean 3 s.h.
- 025:141 History of Jazz 3 s.h.
- 025:144 History of Music I 3 s.h.
- 025:146 History of Music II 3 s.h.
- 025:178 Music, Culture, and Identity 3 s.h.

At least one of these to complete 23 s.h. for the cognate:

- 025:007 Garage Band: The Basics 2 s.h.
- 025:064 Recital Attendance for Non-Majors 1 s.h.
- 048:053 Introduction to Film Sound 3 s.h.
- 048:119 Topics in Film Sound 3 s.h.
- 048:131 Film/Video/Audio Production: Sound Design 3 s.h.
- 049:140 Sound Design for the Theatre 3 s.h.

SOCIOLOGY

The informatics major with a sociology cognate requires 45 s.h. of work for the major, including 20 s.h. in cognate courses, which are drawn from sociology.

All of these:

- 034:001 Introduction to Sociology Principles 3-4 s.h.
- 034:009 Sociological Theory 3 s.h.
- 034:011 Research Methods 3 s.h.

At least 11 s.h. from these:

- 034:002 Social Problems 3-4 s.h.
- 034:010 Quantitative Data Analysis 3 s.h.
- 034:018 Gender and Society 3-4 s.h.
- 034:020 Principles of Social Psychology 3-4 s.h.
- 034:022 Introduction to Social Work 4 s.h.
- 034:040 Criminology 3 s.h.
- 034:061 The American Family 3 s.h.
- 034:066 Social Inequality 3 s.h.
- 034:100 Honors Proseminar 2 s.h.
- 034:125 Small Group Analysis 3 s.h.
- 034:126 Social Movements in the U.S. 3 s.h.
- 034:128 Sociology of Mental Illness 3 s.h.
- 034:135 Sociology of Sexuality 3 s.h.
- 034:141 Juvenile Delinquency 3 s.h.
- 034:146 Deviance and Control 3 s.h.
- 034:148 Internship in Criminal Justice and Corrections 1-5 s.h.
- 034:149 Sociology of Criminal Punishment 3 s.h.
- 034:150 Political Sociology 3 s.h.
- 034:152 African American and Latino Inequality 3 s.h.
- 034:153 Public Opinion 3 s.h.
034:155 Comparative Studies in Race and Ethnicity 3 s.h.
034:156 Gender Inequality 3 s.h.
034:158 Economy and Society 3 s.h.
034:159 Families in Comparative Perspective 3 s.h.
034:162 Work and Family Institutions 3 s.h.
034:164 Organizations and Modern Society 3 s.h.
034:165 Sociology of Work and Occupations 3 s.h.
034:175 Community and Urban Sociology 3 s.h.
034:179 Sociology of Education 3 s.h.
034:182 Sociology of Law 3 s.h.
034:186 Criminal Legal System 3 s.h.
034:190 Selected Topics in Sociology 3 s.h.
034:195 Capstone Course in Sociology 3 s.h.
034:196 Field Experience arr.
034:199 Honors Research arr.

INDIVIDUALIZED COGNATES

Students interested in developing individualized cognates may work with an informatics faculty advisor. Individualized cognates may be drawn primarily from one department or an appropriate mix of departments. In the Bachelor of Arts, individualized cognates require an approved set of cognate courses totaling 18-25 s.h.

Bachelor of Science Cognates

Detailed requirements for the cognate are listed on the Department of Computer Science web site.

BIOINFORMATICS

The informatics major with a bioinformatics cognate requires 55 s.h. of work for the major, including 27 s.h. in cognate courses. The bioinformatics cognate is intended for students interested in applications of computing to the biological sciences. It may lead to careers in laboratory research, data management, and other related areas. It also is preparation for graduate programs in bioinformatics or genetics. The cognate offers a choice of several areas: genome bioinformatics, phylogenics and evolution, proteomics, and systems biology. Cognate courses are drawn primarily from biology and chemistry.

All students in the bioinformatics cognate must complete the following two sequences.

002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.

Students also must complete one of the following four areas.

Genome Bioinformatics

Both of these:
002:128 Fundamental Genetics 3-4 s.h.
002:131 Evolution 4 s.h.

Two of these:
002:170 Bioinformatics 3 s.h.
002:174 Computational Genomics 3 s.h.
002:176 Microarray Data Analysis 3 s.h.

Phylogenetics and Evolution

Both of these:
002:128 Fundamental Genetics 3-4 s.h.
002:131 Evolution 4 s.h.
Two of these:
002:134 Ecology 4 s.h.
002:160 Molecular Phylogenetics 3 s.h.
002:162 Population Genetics and Molecular Evolution 3 s.h.

Proteomics

All of these:
002:133 Cell Biology Laboratory 3 s.h.
004:121 Organic Chemistry I 3 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:241 Biophysical Chemistry I 3 s.h.

Systems Biology

Both of these:
004:121 Organic Chemistry I 3 s.h.
061:157 General Microbiology 5 s.h.

One of these:
002:124 Animal Physiology 3 s.h.
061:147 Survey of Immunology 4 s.h.
061:160 Microbial Physiology 3 s.h.
061:170 Microbial Genetics 3 s.h.

INDIVIDUALIZED COGNATES

Individualized cognates may be drawn primarily from one department or an appropriate mix of departments. In the Bachelor of Science, individualized cognates require an approved set of cognate courses totaling 27-31 s.h. Students interested in developing individualized cognates should contact the Department of Computer Science for the name of an informatics faculty advisor.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Computer Science

Before the third semester begins: math through calculus I, three courses in the major (e.g., 22C:016 Computer Science I: Fundamentals, 22C:019 Discrete Structures, and 22C:021 Computer Science II: Data Structures), and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through calculus II, two more courses in the major (e.g., 22C:022 Object-Oriented Software Development and 22C:060 Computer Organization), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least two more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least one more course in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S. in Computer Science

These checkpoints do not include the required natural science sequence, which students usually complete as part of their General Education Program natural science component.
Before the third semester begins: math through calculus I, three courses in the major (e.g., 22C:016 Computer Science I: Fundamentals, 22C:019 Discrete Structures, and 22C:021 Computer Science II: Data Structures), and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through calculus II, at least two more courses in the major (e.g., 22C:022 Object-Oriented Software Development and 22C:060 Computer Organization), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least three more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A., B.S. in Informatics

Note: Much of the work in informatics and in the cognate area needs to be taken in sequence, so students must begin fulfilling major requirements as early as possible.

Before the third semester begins: 22C:005 Introduction to Computer Science, 22C:080 Programming for Informatics, one or two courses in the cognate area, the statistics course, and at least one-quarter of the semester hours required to graduate

Before the fifth semester begins: the three mid-level informatics courses (22C:082 Human-Computer Interaction, 22C:084 Databases for Informatics, and 22C:086 Networking and Security for Informatics), the statistics course (if not already completed), two or three more courses in the cognate area, and at least one-half of the semester hours required to graduate

Before the seventh semester begins: 22C:094 Informatics Project, an informatics elective course, two or three courses in the cognate area, and at least three-quarters of the semester hours required to graduate

Before the eighth semester begins: a second informatics elective course (for BS students) and courses in the cognate area

During the eighth semester: enrollment in all remaining course work in the major; all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to pursue honors study in the Department of Computer Science, students must be members of the University of Iowa Honors Program, which requires them to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

To graduate with honors in computer science or informatics, students must complete 4-6 s.h. of 22C:099 Honors in Computer Science or Informatics and submit an acceptable honors thesis. Students are responsible for finding a faculty member willing to supervise their honors project. The faculty member must approve the proposed project and a timetable for the work. Students register for 22C:099 Honors in Computer Science or Informatics under the thesis supervisor's instructor number. See the Computer Science Undergraduate Student Handbook for details. Students may count 3 s.h. of 22C:099 Honors in Computer Science or Informatics toward an advanced or technical elective for the B.S. in computer science.

Minor in Computer Science

The minor in computer science requires a minimum of 17 s.h. in computer science, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students excused from courses required for the minor may substitute other computer science electives. The minor requires the following courses.

All of these:

22C:016 Computer Science I: Fundamentals 4 s.h.
22C:019 Discrete Structures 3 s.h.
22C:021 Computer Science II: Data Structures 4 s.h.

At least one of these:

22C:022 Object-Oriented Software Development 4 s.h.
22C:031 Algorithms 3 s.h.
22C:060 Computer Organization 3 s.h.

Students choose one additional computer science course to complete the required 17 s.h.

Students may not use the following courses to satisfy requirements for the minor.

22C:001 Computer Literacy 3 s.h.
22C:002 First-Year Seminar 1 s.h.
22C:005 Introduction to Computer Science 3 s.h.
22C:080 Programming for Informatics 4 s.h.
22C:082 Human-Computer Interaction 3 s.h.
22C:084 Databases for Informatics 3 s.h.
22C:086 Networking and Security for Informatics 3 s.h.
22C:094 Informatics Project 3 s.h.
22C:104 Introduction to Informatics 3 s.h.

Students in electrical and computer engineering who have completed 055:033 Introduction to Software Design, 057:017 Computers in Engineering, and 059:006 Engineering Problem Solving II are considered to have satisfied the requirements for 22C:016 Computer Science I: Fundamentals and 22C:022 Object-Oriented Software Development.

Students may declare the computer science minor on ISIS; application triggers an audit for the minor that is available on ISIS the next day of the academic session.

Minor in Informatics

The minor in informatics requires a minimum of 16 s.h., including at least 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Students earning a major in computer science or in management information systems (Tippie College of Business) may not earn a minor in informatics.

The informatics minor must include the informatics core (13 s.h.) and one statistics course (3-4 s.h.), as follows.

Informatics core--all of these:
22C:005 Introduction to Computer Science 3 s.h.
22C:080 Programming for Informatics 4 s.h.
22C:084 Databases for Informatics 3 s.h.

Informatics core--one of these:
22C:082 Human-Computer Interaction 3 s.h.
22C:086 Networking and Security for Informatics 3 s.h.

Statistics--one of these:
22S:008 Statistics for Business 4 s.h.
22S:025 Elementary Statistics and Inference 3 s.h.
22S:030 Statistical Methods and Computing 3 s.h.
22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
22S:101 Biostatistics 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
22S:120 Probability and Statistics 4 s.h.

Students may declare the informatics minor on ISIS; application triggers an audit for the minor that is available on ISIS the next day of the academic session.

Combined B.A./M.C.S. and B.S./M.C.S.

The joint Bachelor of Arts/Master of Computer Science and Bachelor of Science/Master of Computer Science programs allow qualified students to obtain an undergraduate and a graduate degree in computer science in five years. The B.A./M.C.S. and B.S./M.C.S. each require a total of 140 s.h., which is 12 s.h. less than the sum of the requirements for both degrees.
Students in the joint programs must complete all requirements for each degree. They may count a maximum of 12 s.h. (four courses) toward both degrees; the four courses must be taken during the fourth year, after admission to the joint program, and must satisfy degree requirements of both the B.A. or B.S., and the M.C.S.

When a student withdraws from the joint program before completing his or her bachelor’s degree, credit earned in the four courses is counted only toward the undergraduate degree.

Students are granted the B.A. or B.S. when they complete all requirements for the undergraduate degree.

Students apply for admission to the joint program during their third year as undergraduates and enter the program at the beginning of their fourth year. They usually complete the joint program comfortably in one year after finishing their B.A. or B.S. requirements.

Applicants to the joint program must be enrolled as B.A. or B.S. students in computer science at The University of Iowa; must have completed a minimum of 80 s.h. at the time of admission to the joint program, with at least 30 s.h. earned at The University of Iowa; and must have a cumulative University of Iowa g.p.a. of at least 3.25, and a g.p.a. of at least 3.25 in the computer science major (computed on math prerequisites and core computer science course work taken at The University of Iowa).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must submit an application for admission to the program, a statement of purpose, three letters of recommendation, and transcripts from all colleges attended; they also must apply to the Graduate College. Graduate Record Examination scores are not required. Applicants whose first language is not English must submit scores on the Test of English as a Foreign Language (TOEFL) or the International English Testing System (IELTS).

For more detailed information, visit the Department of Computer Science web site.

**Graduate Programs**

The department offers three graduate degree programs: the Master of Computer Science (M.C.S.), and a Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) in computer science.

The M.C.S. is a nonresearch, course-based program for students who wish to enhance their careers with advanced knowledge of computer science. The Ph.D. emphasizes preparation for research, teaching, and scholarly work in academic settings or private, industrial, or government laboratories. The M.S. is granted only to students working toward the Ph.D.

Admission decisions are based on prior academic performance, letters of reference, scores on the Graduate Record Examination (for Ph.D. applicants), and the applicant’s statement about background and purpose. Students need not have a master’s degree to begin the Ph.D. program or to receive the Ph.D. A student admitted without a master’s degree may choose to receive an M.S. or M.C.S. while working toward the doctorate.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Current and prospective graduate students should consult the Computer Science Graduate Student Handbook, available from the department’s office or on its web site. The handbook provides detailed information about specific degree requirements, such as required courses, examinations, and dissertation requirements. For general information about the department, faculty, and research activities, contact the Department of Computer Science or visit its web site.

**Master of Computer Science**

The Master of Computer Science (M.C.S.) requires a minimum of 32 s.h. of graduate credit. Students must complete at least 26 s.h. at The University of Iowa.

Basic M.C.S. requirements are as follows. Consult the Computer Science Graduate Student Handbook for detailed information about M.C.S. requirements and graduate study policies.

**FOUNDATIONS**

One of these:

- 22C:131 Limits of Computation 3 s.h.
- 22C:135 Theory of Computation 3 s.h.
- 22C:231 Design and Analysis of Algorithms 3 s.h.
SYSTEMS

One of these:

- 22C:160 High Performance Computer Architecture 3 s.h.
- 22C:166 Distributed Systems and Algorithms 3 s.h.
- 22C:181 Formal Methods in Software Engineering 3 s.h.
- 22C:185 Programming Language Foundations 3 s.h.
- 22C:186 Introduction to Compiler Construction 3 s.h.

COLLOQUIUM

M.C.S. students must earn at least 2 s.h. in 22C:399 Research Seminar: Colloquium Series.

ELECTIVES

M.C.S. students fill their remaining 24 s.h. with a combination of computer science graduate courses, reading and project courses, and non-computer science graduate courses approved by their advisor.

Students must take at least six computer science graduate courses (18 s.h.), numbered 22C:120 or above, excluding 22C:191 Research for Thesis, 22C:197 Readings in Computer Science, 22C:198 Individual Programming Projects, 22C:290 Readings for Research, and 22C:399 Research Seminar: Colloquium Series. They may count a maximum of 6 s.h. of computer science independent study courses and/or technical or quantitative non-computer science graduate courses, approved by their advisor, toward the elective requirement. Up to 3 s.h. of independent study courses (22C:191 Research for Thesis, 22C:197 Readings in Computer Science, 22C:198 Individual Programming Projects, and 22C:290 Readings for Research) may be counted toward the requirement.

Master of Science

The Master of Science in computer science is offered only to students working toward a Ph.D. in computer science. Students who are interested primarily in a master's degree and do not intend to pursue a more advanced degree should apply to the M.C.S. program.

Doctor of Philosophy

The Doctor of Philosophy in computer science requires a minimum of 72 s.h. of graduate credit, three examinations (qualifying, comprehensive, and final), and a dissertation.

Basic Ph.D. requirements are as follows. Consult the Computer Science Graduate Student Handbook for detailed information about Ph.D. requirements and graduate study policies.

CORE REQUIREMENT

Both of these:

- 22C:231 Design and Analysis of Algorithms 3 s.h.
- 22C:135 Theory of Computation 3 s.h.

BREADTH

Ph.D. students must complete at least three of the following courses, with at least one course selected from each area (9 s.h.).

Systems and software:

- 22C:160 High Performance Computer Architecture 3 s.h.
- 22C:169 Computer Security 3 s.h.
- 22C:196 Topics in Computer Science (section approved by advisor) 3 s.h.

Networks and distributed systems:
22C:166 Distributed Systems and Algorithms  3 s.h.
22C:196 Topics in Computer Science (section approved by advisor)  3 s.h.

Programming languages and compilers:
22C:181 Formal Methods in Software Engineering  3 s.h.
22C:185 Programming Language Foundations  3 s.h.
22C:186 Introduction to Compiler Construction  3 s.h.
22C:196 Topics in Computer Science (section approved by advisor)  3 s.h.

PRACTICE
Ph.D. students must complete at least one course (3 s.h.) with significant practical or implementation-oriented content. Each semester the department designates courses that satisfy this requirement. The following are typical selections.
22C:144 Database Systems  3 s.h.
22C:145 Artificial Intelligence  3 s.h.
22C:151 Computer Graphics  3 s.h.
22C:174 Optimization Techniques  3 s.h.
22C:177 High Performance and Parallel Computing  3 s.h.
22C:180 Fundamentals of Software Engineering  3 s.h.
22C:198 Individual Programming Projects  3 s.h.
22C:251 Advanced Computer Graphics  3 s.h.

COGNATE AREA
Ph.D. students are required to select, in consultation with their advisor, a total of 9 s.h. in courses that constitute coherent coverage of an external cognate area. Choices include, but are not limited to, mathematics, statistics, genetics, biology, and engineering disciplines.

COLLOQUIUM
Ph.D. students must earn at least 4 s.h. in 22C:399 Research Seminar: Colloquium Series.

ELECTIVES
Ph.D. students fill their remaining semester hours with a selection of computer science graduate courses (excluding those numbered 22C:101 through 22C:119) and non-computer science graduate courses approved by their advisor.

QUALIFYING EXAM
Ph.D. students are required to pass a qualifying examination by the end of their second year of graduate study. Once students select a topic in consultation with their advisor, they are assigned a three-member faculty examination panel by the department. Then they prepare a written prospectus for review by the committee, followed by an oral presentation.

COMPREHENSIVE EXAM
The comprehensive examination is an evaluation of the student's mastery of a research area at or near completion of formal course work, and before preparation of the dissertation. The exam may be written, oral, or both, at the department's discretion, and is administered by a faculty committee. The comprehensive exam typically should be completed by the end of the student's third year and no later than the end of the fourth year in the Ph.D. program.

DISSERTATION
Each Ph.D. student must write a dissertation, a significant, original contribution to the field of computer science. Once students obtain some preliminary results and can identify and describe the boundaries of their dissertation, they prepare a written proposal for their committee's review. The dissertation must be prepared in accordance with the format specified in the Graduate College Thesis Manual.

FINAL ORAL EXAMINATION
Once the dissertation is complete and has been reviewed by the student’s committee, a final oral examination is administered on campus. This examination must take place no sooner than the semester following successful completion of the comprehensive examination and no later than five years after completion of the comprehensive exam.

**Computer Science Courses**

**Courses for Graduate Students from Other Disciplines**

Competence and exposure to computer science are not only useful, they often are prerequisite to advanced study and research in many disciplines. For most graduate students from other disciplines, an appropriate first course is 22C:104 Introduction to Informatics.

**Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>22C:001</td>
<td>Computer Literacy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:002</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>22C:005</td>
<td>Introduction to Computer Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:016</td>
<td>Computer Science I: Fundamentals</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22C:019</td>
<td>Discrete Structures</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:021</td>
<td>Computer Science II: Data Structures</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22C:022</td>
<td>Object-Oriented Software Development</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22C:031</td>
<td>Algorithms</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:060</td>
<td>Computer Organization</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Computer Science Courses**

**Computer Literacy**

3 s.h.

- Computer literacy; nature, uses, limitations of computers and computing; impact of computer technology on society; privacy, ethics, security; overview of computer organization; introduction to applications, including communications, word processing, desktop publishing, spreadsheets, graphics, databases, World Wide Web. No credit for students who have completed a higher-numbered 22C course or 06K:070.

**First-Year Seminar**

1 s.h.

- Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**Introduction to Computer Science**

3 s.h.

- Broad overview; representation of information, microprocessor fundamentals, databases, networks, graphics, impact and limitations of technology, multimedia web page development, Flash movie clips. Prerequisite: closed to students who have completed a computer science course numbered 22C:021 or above. GE: Quantitative or Formal Reasoning.

**Computer Science I: Fundamentals**

4 s.h.

- Programming using Java with emphasis on software engineering practice; programming constructs, data types, problem-solving strategies, data structures, object-oriented programming. Prerequisite: 22M:005 or 22M:013 or 22M:015 or the equivalent high school or college mathematics background. GE: Quantitative or Formal Reasoning.

**Discrete Structures**

3 s.h.

- Mathematical methods used in computer science, including logic, proof techniques (with induction), functions, relations, algorithm analysis, recurrence relations, counting methods, combinatorics, graphs, trees. Prerequisite: grade of C- or higher in 22C:016. Recommended: calculus I.

**Computer Science II: Data Structures**

4 s.h.

- Design, implementation and analysis of data structures and algorithms, including linked lists, stacks, queues, hash tables, trees, graphs; complexity analysis; recursion; dynamic data structures. Prerequisite: grade of C- or higher in 22C:016. Pre- or corequisite: 22C:019.

**Object-Oriented Software Development**

4 s.h.

- Object-oriented design and software development methodology; team programming projects; GUIs, event handling, network programming, concurrency, data representation, IO programming. Prerequisite: grade of C- or higher in 22C:016. Pre- or corequisite: 22C:019.

**Algorithms**

3 s.h.

- Algorithm design techniques (divide and conquer, dynamic programming, greedy) and analysis techniques (big O notation, recurrence); sorting (merge sort, heapsort, and quicksort), searching (B-trees, AVL trees or red black trees, hashing); basic graph algorithms (depth-first and breadth-first search, minimum spanning trees, shortest paths); NP-completeness. Prerequisites: grade of C- or higher in 22C:021, and 22M:025 or 22M:031.

**Computer Organization**

3 s.h.

- Computer building blocks: representing data, computer arithmetic, instruction sets, assembly language, digital logic, control units, ALU design, register operations, memory organization, IO. Prerequisite: grade of C- or higher in 22C:021.
### 22C:072 Elementary Numerical Analysis
3 s.h.
Computer arithmetic, root finding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer language such as Matlab, Maple, Mathematica. Prerequisite: grade of C- or higher in 22M:026 or 22M:032. Same as 22M:072.

### 22C:080 Programming for Informatics
4 s.h.
Computing fundamentals for informatics students, including practical programming skills (e.g., in Perl, other scripting languages) and introduction to algorithms, data structures, databases. Prerequisites: 22C:005. Pre- or corequisite: 22M:003 or 22M:009 or 22M:010 or 22M:013 or 22M:015.

### 22C:082 Human-Computer Interaction
3 s.h.
Basic theories, principles, and guidelines for design and evaluation of human-computer interactions; design methodologies (e.g., participatory design, low- and high-fidelity prototyping), user interface technologies (e.g., input and output devices, interaction styles), quantitative and qualitative evaluation of user interfaces (e.g., expert reviews, usability testing). Pre- or corequisites: 22C:080 and an approved statistics course.

### 22C:084 Databases for Informatics
3 s.h.
Design and implementation of relational database systems: introduction to the relational model, database design, database normalization, use of database query and manipulation languages such as SQL. Prerequisite: 22C:080.

### 22C:086 Networking and Security for Informatics
3 s.h.
Introduction to computer networking, overview of network organization and management; basic understanding of encryption and network security; practical experience in network programming. Prerequisite: 22C:080.

### 22C:094 Informatics Project
3 s.h.
Experience designing, implementing, documenting, and testing a system using appropriate software tools (e.g., a project working with an information management tool consisting of a database system with a Web-based front end); typically done in small groups; capstone project for informatics majors. Prerequisites: 22C:082, 22C:084, and 22C:086.

### 22C:096 Topics in Computer Science
arr.
Complement to material in other courses. Prerequisite: consent of instructor.

### 22C:099 Honors in Computer Science or Informatics
arr.
Individual projects. Prerequisites: computer science or informatics major, honors standing, and consent of instructor.

#### For Undergraduate and Graduate Students

### 22C:109 Programming Languages and Tools
3 s.h.
Varied programming languages and tools. Prerequisite: 22C:016 or 22C:080 or 22C:104 or consent of instructor.

### 22C:111 Programming Language Concepts
3 s.h.
Imperative, functional, and logical programming languages, and differences between them; syntax specification, types, control structures, recursion, data abstraction. Prerequisites: grades of C- or higher in 22C:019, 22C:021, and 22C:022.

### 22C:112 Operating Systems
3 s.h.
Introduction to modern operating systems, including device control, memory management and addressing, process scheduling, interprocess communication, interrupts, synchronization, security. Prerequisite: grade of C- or higher in 22C:060.

### 22C:113 Introduction to Systems Software
3 s.h.
Design and implementation of system software, including operating systems and programming support software (assemblers, compilers, linkers, loaders); process, memory, message management. Prerequisite: grade of C- or higher in 22C:060.

### 22C:118 Introduction to Networks and Their Applications
3 s.h.
Introduction to networks and the development of network applications; basic concepts of network communication common to applications such as simulation and web services. Prerequisite: grade of C- or higher in 22C:060.
22C:131 Limits of Computation 3 s.h.
Turing machines, undecidability and complexity: reductions, Cook's theorem and NP-completeness, approximation algorithms and randomized algorithms. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:135 Theory of Computation 3 s.h.
Finite automata; regular sets and expressions; context-free and context-sensitive grammars, their properties; push-down automata; standard, universal, and linear-bound Turing machines; relationships between formal languages and automata; undecidability and its consequences. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:137 Theory of Graphs 3 s.h.
Connectivity properties, including Euler, Hamilton cycle problems; graph colorings, matchings; characterization of families of graphs such as trees, planar graphs, networks; graph algorithms, their applications. Prerequisite: 22M:050 or equivalent or consent of instructor. Same as 22M:152.

22C:141 Knowledge Discovery 3 s.h.
Knowledge discovery process, including data reduction, cleansing, transformation; advanced modeling techniques from classification, prediction, clustering, association; evaluation and integration. Prerequisite: consent of instructor. Same as 06K:275.

22C:142 Knowledge Discovery and Data Mining 3 s.h.
Concepts and techniques in knowledge discovery and data mining (KDD); data preprocessing, exploration, association analysis, classification, prediction, clustering. Prerequisites: 22C:031 or 22C:104, and some probability/statistics.

22C:144 Database Systems 3 s.h.
Introduction to database systems including querying using SQL, design using ER diagrams, developing relational databases, programming web applications using PHP or JDBC. Prerequisites: grades of C- or higher in 22C:021 and 22C:022, or equivalents.

22C:145 Artificial Intelligence 3 s.h.
Introduction to artificial intelligence covering problem-solving methods, heuristic search, knowledge representation, automated reasoning, planning, game playing, machine learning, and neural networks. Prerequisite: grade of C- or higher in 22C:031 or equivalent.

22C:146 Introduction to Computational Linguistics 3 s.h.
Introduction to computational linguistics; focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as 103:140.

22C:151 Computer Graphics 3 s.h.
Introduction to computer graphics algorithms and techniques, with emphasis on interactive 3-D graphics; coordinate systems and frames, modeling and viewing transformations, rendering, shading, lighting, texture, bump, environment mapping, animation, ray tracing, radiosity. Prerequisites: grades of C- or higher in 22C:031 and 22M:027, or equivalents.

22C:160 High Performance Computer Architecture 3 s.h.
Problems involved in designing and analyzing current machine architectures using hardware description language (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisite: 22C:112 or 22C:113 or 055:035. Same as 055:132.

22C:166 Distributed Systems and Algorithms 3 s.h.
Models of distributed systems, program correctness--safety and liveness properties, causality, logical and vector clocks, mutual exclusion, distributed snapshot, leader election, distributed algorithms for graph-theoretic problems, fault-tolerance--masking versus nonmasking types, checkpointing, stabilization, consensus--byzantine generals problem, fault-tolerant broadcast and multicast, management of replicated data.

22C:169 Computer Security 3 s.h.
Mechanism versus policy; authentication, access control, security domains; perimeter security, defense in depth; cryptographic protocols; key management and distribution; security assessment. Prerequisite: grade of C- or higher in 22C:060 or equivalent.

22C:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: 22M:027 and 22M:028, or 22M:037 or 22M:056 or equivalent or consent of instructor; and knowledge of computer programming. Same as 22M:170.

22C:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: 22M:027 and 22M:028; or 22M:037 or 22M:056 or equivalent or consent of instructor; knowledge of computer programming; and 22M:100. Same as 22M:171.

22C:174 Optimization Techniques 3 s.h.
Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisites: 22M:027, 22M:028 or 22M:056, and 22M:072 or equivalent; or consent of instructor. Same as 22M:174.

22C:177 High Performance and Parallel Computing 3 s.h.
Parallel scientific computing methods such as parallel algorithms for dense and sparse matrices; implementation using libraries such as MPI; current topics such as grid computing. Prerequisites: a linear algebra course or a numerical analysis course, and a programming language. Same as 22M:178.

22C:180 Fundamentals of Software Engineering 3 s.h.
Problem analysis, requirements definition, specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication; design methodologies; software validation, verification; group project experience. Prerequisite: 22C:022 or 055:033, and senior or graduate standing in computer science or electrical and computer engineering. Same as 055:180.

22C:181 Formal Methods in Software Engineering 3 s.h.
Models, methods, and their application in all phases of software engineering process; specification methods; verification of consistency, completeness of specifications; verification using tools. Prerequisite: grade of C- or higher in 22C:180 or consent of instructor. Same as 055:181.

22C:182 Software Engineering Languages and Tools 3 s.h.
Object-oriented programming concepts (objects, classes, single and multiple inheritance, polymorphism and dynamic binding); object-oriented languages and environments such as JAVA and Eiffel; introduction to design patterns and software architectures such as Model-View-Controller and application frameworks; component-based software development; use of standard component frameworks such as CORBA and COM/DCOM. Prerequisites: 22C:180 or 055:180, experience with an object-oriented programming language, and consent of instructor. Same as 055:182.

22C:183 Software Engineering Project 3 s.h.
Team software development project using concepts and methodologies learned in earlier software engineering classes; practical aspects of large-scale software development. Prerequisites: 22C:180 and 22C:182, or consent of instructor. Same as 055:183.

22C:185 Programming Language Foundations 3 s.h.
Introduction to formal foundations of programming languages using a variety of models, including attribute grammars, operational, axiomatic, denotational, and algebraic techniques; proofs of program equivalence, correctness, termination. Prerequisites: grades of C- or higher in 22C:031 and 22C:111, or equivalents.

22C:186 Introduction to Compiler Construction 3 s.h.
Concept, design, implementation; simple one-pass compiler; lexical analysis--token specification and recognition, automatic scanner generation; syntax analysis--context-free grammars, top-down, bottom-up, and operator precedence parsing, LL- and LR-parser techniques, treating ambiguous grammars, error recovery; intermediate code generation--postfix notation, three-address code, syntax trees; code optimization--local, global, loop; large programming project. Prerequisites: grades of C- or higher in 22C:031, 22C:111, and 22C:112 or 22C:113, or equivalents.
For Graduate Students

22C:104 Introduction to Informatics 3 s.h.
Fundamentals of computer science: algorithms, complexity, relational databases, systems concepts, programming in Perl. Prerequisite: non-computer science major.

22C:231 Design and Analysis of Algorithms 3 s.h.
Review of design and analysis techniques; advanced data structures (binomial and Fibonacci heaps, disjoint sets); graph algorithms (network flows, matching, min-cut); NP-completeness, randomization and approximation algorithms; special topics (string matching, computational geometry, number theoretic algorithms). Prerequisite: 22C:031 or 22C:131 or equivalent.

22C:242 Data Mining and Machine Learning 3 s.h.
Topics in machine learning theory and support vector machines (SVM); state-of-the-art data mining and machine learning explored through student projects and discussion of research papers. Prerequisites: 06K:275 or 22C:141 or 22C:142.

22C:244 Database System Implementation 3 s.h.
Advanced database topics including file organizations, storage management, architectures, query optimization, transaction management, recovery, and concurrency control; optional topics include distributed databases and integration. Prerequisite: 22C:144 or equivalent.

22C:245 Advanced Artificial Intelligence 3 s.h.
In-depth treatment of one of these: automated deduction (e.g., first-order logic, natural deduction, resolution, model elimination, equational reasoning, search plans for theorem proving, theorem proven design), constraint satisfaction, model construction, planning, AI programming languages and techniques, machine learning, philosophies of machine intelligence. Prerequisite: 22C:145 or equivalent.

22C:251 Advanced Computer Graphics 3 s.h.
Topics such as global illumination and rendering; volume rendering; animation; curves and surfaces, advanced modeling and mapping techniques; graphics hardware; real-time graphics for virtual environments. Prerequisite: 22C:151 or consent of instructor.

22C:290 Readings for Research arr.
Prerequisites: Ph.D. standing in computer science and consent of instructor.

22C:294 Seminar on Systems and Networks arr.
Prerequisite: consent of instructor.

22C:296 Seminar on Computer Science arr.
Prerequisite: consent of instructor.

22C:299 Research for Dissertation arr.
Prerequisites: Ph.D. candidacy (post-comprehensive exam) in computer science and consent of advisor.

22C:391 Research Seminar: Algorithms 1 s.h.
Research papers in algorithm design and analysis. Repeatable. Prerequisite: 22C:131 or consent of instructor.

22C:398 Research Seminar: Programming Languages
Repeatable. Prerequisite: consent of instructor.

22C:399 Research Seminar: Colloquium Series
Graduate colloquium. Repeatable.
The Creative Writing Program (Iowa Writers' Workshop) is a world-renowned graduate program for fiction writers and poets. It was the first creative writing program in the United States to offer a degree, and it became a model for many contemporary writing programs. In addition to its Master of Fine Arts program, it also offers writing courses for undergraduates.

Creative writing classes at The University of Iowa began in the 1890s, and in 1922 the University became the nation's first institution of higher education to accept creative work as theses for advanced degrees. The Iowa Writers' Workshop began in 1936, drawing distinguished fiction writers and poets who would lecture and stay to discuss students' work; some came for a full year of teaching.

Today the program's faculty and alumni include nationally and internationally prominent poets, novelists, and short story writers; many have won Pulitzer Prizes, National Book Awards, and other major literary honors. In 2003 the Iowa Writers' Workshop received a National Humanities Medal from the National Endowment for the Humanities—the first awarded to a university and only the second given to an institution rather than an individual.

To learn more about the Creative Writing Program's history and faculty, visit the Iowa Writers' Workshop web site.

**Graduate Program**

The Program in Creative Writing offers instruction that leads to a Master of Fine Arts degree in English.

Unusually well-qualified students in the Department of English Ph.D. program may obtain permission to submit a creative dissertation for that degree. In such a case, the Program in Creative Writing assumes responsibility for granting permission for the option of the creative dissertation and for approving the dissertation once it is completed. Contact the director of graduate study in the Department of English for more information.

**Master of Fine Arts**

The Master of Fine Arts in English (creative writing) requires 48 s.h. of graduate credit taken over four semesters in residence at The University of Iowa. Students specialize in fiction or poetry. Work toward the degree culminates in a creative thesis.

The program is flexible and individualized. Approximately half of the credit required for the degree is earned in writing courses; the rest may be earned in other graduate courses. Up to 18 s.h. of graduate transfer credit may be counted toward the degree, but transfer credit does not change the residency requirement.

Students must enroll in 08C:251 Fiction Workshop or 08C:252 Poetry Workshop during each semester of residence in the program. In each course, groups of 10-15 students read and critique each others' work.

The program's seminars provide students with a thorough knowledge of their chosen literary form and related aspects of craft. Seminars include 08C:270 Form of Fiction, 08C:275 Form of Poetry, 08C:490 Seminar: Problems in Modern Fiction, and 08C:495 Seminar: Problems in Modern Poetry. Each focuses on a single aspect of modern poetry or fiction, such as a single writer's work or a body of work with a common theme or purpose.

In addition to taking Creative Writing Program courses, many M.F.A. students choose courses offered by other University of Iowa departments and programs, such as the interdisciplinary Center for the Book (Graduate College), the Department of Theatre Arts, the Department of Cinema and Comparative Literature, and the Department of English.

During the last semester of the program, each student must take the M.F.A. examination, an essay exam that may be written outside of the classroom. Students also submit their graduate thesis during the last semester (08C:590 M.F.A. Thesis); the thesis is a fiction or poetry manuscript of substantial length.

**Admission**

Applicants to the Creative Writing Program (Iowa Writers' Workshop) must meet the program's admission requirements as well as those of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

A creative writing manuscript is the most important element of the application for admission to the workshop. Submissions for poetry should include 10-12 poems. Submissions for fiction should include two or three short stories or
Other application materials include a personal statement, official transcripts from all universities and colleges attended, the graduate application form, three letters of recommendation, an application for graduate awards, and an application to the Graduate College. Graduate Record Exam (GRE) General Test scores are optional, but they may make applicants more competitive for a wider range of financial assistance.

For detailed information on application materials and procedures, see Graduate Admissions/Admission to the Workshop on the Iowa Writers' Workshop web site.

Financial Support

Financial assistance is available to Creative Writing Program students in the form of teaching assistantships, research assistants, and fellowships. See Applying for Financial Aid on the Iowa Writer's Workshop web site.

Creative Writing Program Courses

The Creative Writing Program offers courses for undergraduates as well as graduate students. Some undergraduate courses require enrollment in the Department of English undergraduate creative writing track. Enrollment in some graduate-level courses requires admission to the M.F.A. program.

For Undergraduates

See "Courses" in the Department of English section of the Catalog for course descriptions and prerequisites to enrollment.

08C:001 Creative Writing Studio Workshop 3 s.h.
08C:023 Creative Writing 3 s.h.
08C:097 Fiction Writing 3 s.h.
08C:098 Poetry Writing 3 s.h.
08C:107 Creative Writing for the Health Professions 3 s.h.
08C:108 Creative Writing for New Media 3 s.h.
08C:110 Creative Writing for the Ecologically Aware: Stories in the Land 3 s.h.
08C:115 Creative Writing and Popular Culture 3 s.h.
08C:163 Undergraduate Writers' Workshop: Fiction arr.
08C:166 Undergraduate Writers' Workshop: Poetry arr.
08C:167 Undergraduate Writers' Seminar 3 s.h.
08C:195 Undergraduate Project in Creative Writing arr.

For Graduate Students

See "Courses" in the Department of English section of the Catalog for course descriptions and prerequisites to enrollment.

08C:251 Fiction Workshop arr.
08C:252 Poetry Workshop arr.
08C:270 Form of Fiction 3 s.h.
08C:275 Form of Poetry 3 s.h.
08C:297 Fiction Writing 3 s.h.
08C:298 Poetry Writing 3 s.h.
08C:490 Seminar: Problems in Modern Fiction arr.
08C:495 Seminar: Problems in Modern Poetry arr.
08C:555 Graduate Project in Creative Writing arr.
08C:590 M.F.A. Thesis arr.
The College of Liberal Arts and Sciences offers the Certificate in Critical Cultural Competence. The certificate program helps students develop an appreciation for their own cultural identities. It also helps them become critically self-reflective in their orientation to differences in other people's cultural identities as defined by matters such as race, ethnicity, gender, class, and sexual orientation.

The certificate program is open to undergraduate students across the University. It is administered by the School of Social Work.

Certificate

The Certificate in Critical Cultural Competence requires 18 s.h. of course work. Ideally, students begin the certificate during their second year of undergraduate study.

Certificate students build the knowledge, skills, and attitudes they will need in order to increase their effectiveness in relating to others across cultural differences and in domestic and international environments that are increasingly diverse.

Intended outcomes for students who complete the certificate are:

- greater appreciation of cultural differences;
- increased ability to interact with individuals of diverse backgrounds;
- adoption of a philosophy of treating people fairly, equitably, and thoughtfully;
- critical self-reflection and awareness of one's own culture;
- ability to assess and understand culture-related privilege and disprivilege; and
- concern with issues of power and privilege, and social justice.

The certificate requires the following course work.

208:120 Foundations of Critical Cultural Competence 3 s.h.
Three electives covering at least two diversity categories 9 s.h.
One elective with an immersion-learning or service-learning component 3 s.h.
208:190 Integrative Seminar in Critical Cultural Competence 3 s.h.

Students begin the certificate with 208:120 Foundations of Critical Cultural Competence, which is offered spring semesters and is prerequisite to the course work that follows. They complete a minimum of three elective courses (9 s.h.) that cover at least two diversity categories; a maximum of two electives may be taken from the same department, and two of the three electives must be 100-level or above. An additional experiential elective (3 s.h.) with an immersion-learning or service-learning component is required. Students complete the certificate's requirements with the capstone course, 208:190 Integrative Seminar in Critical Cultural Competence, which is offered spring semesters.

In collaboration with the certificate program's coordinator, students establish study plans while completing the foundation course. The coordinator works with the academic advisor in the student's major to ensure that the study plan complements the student's academic program and career interests. The program coordinator approves the final study plan, recommends the sequence in which course work should be taken, schedules required courses, and keeps a record of each student's approved program and progress.

Once a student fulfills the requirements for the certificate and completes an undergraduate degree, the certificate is noted on his or her transcript.

For more information, contact the School of Social Work.

Critical Cultural Competence Courses

208:120 Foundations of Critical Cultural Competence 3 s.h.
Experiential and theoretical foundation; cultural competence as a concept and practice; conceptual frameworks and models for understanding cultural differences and similarities within, among, and between groups of people with whom others interact in their professional, personal, public, and private lives; appreciating differences while learning to be self-reflective; adjustment of perceptions, behaviors, styles for effective interaction with people from different ethnic, racial, sexual, gender, class groups.

208:190 Integrative Seminar in Critical Cultural Competence 3 s.h.
Capstone course; application of knowledge to one's areas of study; community settings where cultural competence is required; challenges and benefits of behaving in culturally competent ways in varied contexts; review and critique of educational experiences in the certificate program; development of skills in community education related to cultural competence; group project to benefit the University and/or community; development of a plan to integrate critical cultural competence into careers. Prerequisite: completion of other required certificate courses. Pre- or corequisite: one certificate course.
Dance

Director, Division of Performing Arts: Alan MacVey
Acting chair: Alan MacVey
Professors: Alan Sener, Armando Duarte
Professor emerita: Françoise Martinet
Associate professors: Charlotte Adams, George de la Peña, Rebekah Kowal
Associate professors emeritae: Alicia Brown, Helen Chadima
Assistant professors: Eloy Barragán, Deanna Carter, Jennifer Kayle
Adjunct assistant professors: Paul Cunliffe, Lyle Juracek
Lecturer: Jim Albert
Undergraduate degrees: B.A., B.F.A. in Dance
Undergraduate nondegree program: Minor in Dance
Graduate degree: M.F.A. in Dance
Web site: http://dance.uiowa.edu

The Department of Dance offers degree programs for undergraduates and graduate students. The undergraduate major in dance provides a liberal arts and sciences education and thorough preparation for careers in professional dance, choreography, and education, as well as preparation for graduate studies.

The department offers as many as 14 concerts every year, providing dance students with numerous opportunities for performance and choreography. Each year the University of Iowa Dance Company performs Dance Gala on campus, and since 1986, the department's touring company, Dancers in Company, has given students an opportunity to perform in Iowa and surrounding states.

Dance faculty members regularly present their choreography in national and international venues, giving University student performers the opportunity to further develop their performance skills. Periodic master classes with noted guest teachers, choreographers, and touring companies add diversity to the dance experience.

The department is one of four academic units that make up the Division of Performing Arts.

Undergraduate Programs

The department offers a Bachelor of Arts, a Bachelor of Fine Arts, and a minor in dance. It also participates in offering the Certificate in Performing Arts Entrepreneurship, offered through the Division of Performing Arts.

Students must audition on campus in order to be admitted to a degree program or the minor in dance, as well as for placement in advanced dance classes.

Bachelor of Arts

The Bachelor of Arts in dance requires a minimum of 120 s.h., including 53 s.h. of work for the major (50 s.h. in dance and 3 s.h. in a required anatomy course). The program is designed for students who want to acquire a strong liberal arts and sciences background while pursuing a comprehensive undergraduate dance education. The degree stresses performance and choreography as well as dance theory courses, including dance history, dance kinesiology, and dance production.

Students must audition on campus, during the semester before they enter the University, in order to be admitted to a degree program in dance. They must audition for placement in dance classes before they register for classes. Nonmajors and students minoring in dance may register only for beginning and continuing levels of ballet and modern dance, but they may register for all levels of jazz and Afro-Cuban dance. Contact the Department of Dance, the undergraduate program coordinator, or the Office of Admissions for additional information.

Students must complete the College of Liberal Arts and Sciences General Education Program.

All B.A. students must complete 027:053 Human Anatomy (3 s.h.). The required 50 s.h. in Department of Dance courses must include two semesters of 137:113 Major Ballet II or 137:114 Major Dance II with a grade of B-minus or higher. Two semesters of 137:124 Major Modern Dance III, 137:123 Major Ballet III, or 137:130 Major Modern Dance IV also satisfy this requirement. At least half of all semester hours in the major must be earned at The University of Iowa. No more than 50 s.h. in Department of Dance courses may be counted toward the 120 s.h. required for the B.A.

Students who select cross-referenced, non-dance department courses to satisfy the core course requirements must take additional dance electives to complete the required 50 s.h. in Department of Dance courses.

CORE COURSES

027:053 Human Anatomy 3 s.h.
137:040 Introduction to Dance Studies 1 s.h.
137:050 Dance Production 3 s.h.
Dance

137:051/049:045 Production: Run Crew (2 s.h. required) 1-2 s.h.
137:080/188:080 Dance and Society 3 s.h.
137:147/049:108 Dance Kinesiology 3 s.h.
137:181 Dance History 3 s.h.

025:010 Fundamentals of Music 3 s.h.
or
137:060 Music Fundamentals in Dance 2 s.h.

STUDIO COURSES

137:034 Beginning/Contact Improvisation 2 s.h.
or
137:134 Improvisation I 2 s.h.

137:070 Choreography I 2 s.h.
137:071 Choreography II 2 s.h.

DANCE TECHNIQUE

Dance majors must take 6 s.h. each of ballet and of modern dance technique; students choose 20 s.h. from the following. All courses may be repeated.

137:022 Intermediate Jazz 2 s.h.
137:023 Intermediate Ballet 2 s.h.
137:024 Intermediate Modern 2 s.h.
137:103 Major Ballet I 1-3 s.h.
137:104 Major Modern Dance I 1-3 s.h.
137:113 Major Ballet II 1-3 s.h.
137:114 Major Modern Dance II 1-3 s.h.
137:123 Major Ballet III 1-3 s.h.
137:124 Major Modern Dance III 1-3 s.h.
137:130 Major Modern Dance IV 1-2 s.h.
137:133 Ballet Pointe II 1 s.h.

DANCE ELECTIVES

Credit earned in Department of Dance courses (prefix 137) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 50 s.h. of dance courses required for the Bachelor of Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-referenced courses from another department, or has a core requirement waived.

Bachelor of Fine Arts

The Bachelor of Fine Arts in dance requires a minimum of 120 s.h., including 78 s.h. of work for the major (75 s.h. in dance and 3 s.h. in a required anatomy course). In contrast to the B.A., the B.F.A. emphasizes choreography and performance through an additional 25 s.h. of choreography, performance, and technique. Students may be admitted to the B.F.A. program after they have completed a minimum of 30 s.h. at The University of Iowa. Students who have achieved the equivalent of major II technique and who show academic and professional promise are selected by department faculty for admission to the program.

Students must complete the College of Liberal Arts and Sciences General Education Program.

All B.F.A. students must complete 027:053 Human Anatomy (3 s.h.). The required 75 s.h. in Department of Dance courses must include three semesters of 137:123 Major Ballet III or 137:130 Major Modern Dance IV with a grade of B-minus or higher. B.F.A. students are required to maintain a cumulative g.p.a. of at least 3.50 in dance department
courses. They also must earn at least half of the semester hours in the major at The University of Iowa. No more than 75 s.h. in Department of Dance courses may be counted toward the 120 s.h. required for the B.F.A.

The department encourages B.F.A. students to register for cross-referenced core courses under the Department of Dance course number (prefix 137). Cross-referenced courses are those with more than one course number (e.g., 137:05/1049:049 Production: Run Crew).

CORE COURSES

B.F.A. students should register for cross-listed courses under the Department of Dance course number (prefix 137).

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:053</td>
<td>Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:040</td>
<td>Introduction to Dance Studies</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>137:050</td>
<td>Dance Production</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:051/049:045</td>
<td>Production: Run Crew (2 s.h. required)</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>137:080/188:080</td>
<td>Dance and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:147/049:108</td>
<td>Dance Kinesiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:181</td>
<td>Dance History</td>
<td>3 s.h.</td>
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</table>

025:010 Fundamentals of Music

or

137:060 Music Fundamentals in Dance

STUDIO COURSES

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:034</td>
<td>Beginning/Contact Improvisation</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:134</td>
<td>Improvisation I</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:070</td>
<td>Choreography I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:071</td>
<td>Choreography II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>137:106</td>
<td>Dance Performance (6 s.h. required)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>137:170</td>
<td>Choreography III</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

DANCE TECHNIQUE

Students are required to complete 14 s.h. each of ballet and modern dance courses and a total of 32 s.h. of technique, chosen from the following (all courses are repeatable).

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>137:103</td>
<td>Major Ballet I</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:104</td>
<td>Major Modern Dance I</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:113</td>
<td>Major Ballet II</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:114</td>
<td>Major Modern Dance II</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:123</td>
<td>Major Ballet III</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:124</td>
<td>Major Modern Dance III</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>137:130</td>
<td>Major Modern Dance IV</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>137:133</td>
<td>Ballet Pointe II</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>137:157</td>
<td>Brazilian Carnival</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>137:160</td>
<td>Movement for Performers</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>137:174</td>
<td>Introduction to Afro-Cuban Dance</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

DANCE ELECTIVES

B.F.A. students choose advanced-level elective course work by selecting one of the following three options.

Option 1 (one pedagogy course):

137:143 Elementary Ballet Pedagogy

3 s.h.
or
137:144 Teaching of Modern Dance 3 s.h.

Option 2 (one advanced history or theory course):
137:202 Theories of Dance and the Body 3 s.h.
or
137:182 The Contemporary Dance Scene 3 s.h.

Option 3 (two choreography courses):
137:171 Choreography IV 2 s.h.
137:172 Independent Choreography 1 s.h.

Credit earned in Department of Dance courses (prefix 137) that is not used to satisfy core, studio, or dance technique degree requirements is counted toward the dance elective requirement. Dance electives complete the 75 s.h. of dance courses required for the Bachelor of Fine Arts.

The required number of semester hours in dance electives varies depending on whether the student completes the core with dance courses or with cross-referenced courses from another department, or has a core requirement waived.

Senior Project

B.F.A. students culminate their experience with senior projects in choreography or performance. The senior project also may be taken for honors credit.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Department of Dance course work beyond 50 s.h. for a B.A. and 75 s.h. for a B.F.A. does not apply toward semester hours required for graduation.

Bachelor of Arts

Before the third semester begins: 12 s.h. of courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 24-32 s.h. of courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 36-48 s.h. of courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 42-50 s.h. of courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Fine Arts

Before the third semester begins: 16 s.h. of courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 25-40 s.h. of courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 45-60 s.h. of courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 57-75 s.h. of courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to pursue honors studies in the Department of Dance, a student must be a member of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact
the University of Iowa Honors Program for more information). Honors students in dance must maintain a g.p.a. of at least 3.50 in UI dance department courses.

The honors program in dance is designed to serve and recognize outstanding students in the areas of choreography, performance, and special projects. It requires 8-10 s.h. To complete the honors program in dance, students must take two courses for honors credit and complete an honors project. All honors projects must be approved by the dance department faculty.

**Minor**

The minor in dance requires a minimum of 15 s.h. in University of Iowa Department of Dance courses, including 12 s.h. in 100-level courses. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students must audition on campus in order to be admitted to the minor and for placement in dance classes. Auditions are offered four times per year. For audition information, contact the department or visit the Department of Dance web site.

**Graduate Program**

The department offers a Master of Fine Arts in dance, with a choice of choreography or performance track. Students must audition on campus in order to be admitted to the M.F.A. program.

**Master of Fine Arts**

The Master of Fine Arts in dance requires a minimum of 60 s.h. of graduate credit. The program is designed to be completed in four to six semesters in residence. Students who demonstrate accomplishment in dance performance and/or choreography may apply for admission to the M.F.A. program. Applicants select the choreography or the performance track before they are admitted.

Admission is based on a review of videotaped choreographic and performance work; letters of recommendation; application materials; and an on-campus audition, in which applicants teach one or more classes and take advanced classes in ballet and modern technique.

Advanced technique (ballet and/or modern) and demonstrated accomplishment in performance or choreography are prerequisites for admission to the M.F.A. program.

The M.F.A. requires the following course work.

**DANCE CORE**

A total of 19 s.h. of core course work is required for both the performance and the choreography track.

- 137:143 Elementary Ballet Pedagogy 3 s.h.
- or 137:144 Teaching of Modern Dance 3 s.h.
- 137:200 Graduate Seminar in Dance 2 s.h.
- 137:201 Graduate Production Practicum 1 s.h.
- 137:202 Theories of Dance and the Body 3 s.h.
- 137:234 Graduate Improvisation I 1-2 s.h.
- or 137:235 Graduate Improvisation II 2 s.h.
- 137:277 Thesis (8 s.h. required) arr.

**DANCE TECHNIQUE**

The performance track requires 18 s.h. from the following, the choreography track requires 12 s.h.; courses may be repeated. Performance track students must take a minimum of 4 s.h. of modern dance and 4 s.h. of ballet.

- 137:103 Major Ballet I 1-3 s.h.
- 137:104 Major Modern Dance I 1-3 s.h.
- 137:213 Graduate Majors Ballet II 1-3 s.h.
137:214 Graduate Majors Modern II 1-3 s.h.
137:223 Graduate Majors Ballet III 1-3 s.h.
137:224 Graduate Majors Modern III 1-3 s.h.
137:230 Graduate Major Modern IV 1-2 s.h.

EMPHASIS COURSES

A total of 14 s.h. is required for both the choreography and the performance track.

Choreography Track

137:206 Graduate Dance Performance (1 s.h. each performance, 2 s.h. total) 1 s.h.
137:274 Graduate Independent Choreography (1 s.h. each project, 4 s.h. total) 1 s.h.

A total of 8 s.h. from these:
137:270 Graduate Choreography I 2 s.h.
137:271 Graduate Choreography II 2 s.h.
137:272 Graduate Choreography III 2 s.h.
137:273 Graduate Choreography IV 2 s.h.
137:275 Collaborative Performance 1-4 s.h.

Performance Track

M.F.A. performance track candidates must earn 12 s.h. in performance courses and 2 s.h. in choreography courses.

137:107 Repertory Dance Company (4 s.h. per year, 0-8 s.h. total) 0-4 s.h.
137:206 Graduate Dance Performance (1 s.h. each performance, 4-12 s.h. total) 1 s.h.
137:274 Graduate Independent Choreography (1 s.h. each project, 2 s.h. total) 1 s.h.
or
A course from the choreography sequence (137:270-137:273) 2 s.h.

ELECTIVES

M.F.A. candidates in performance must earn a total of 9 s.h. in elective courses numbered 100 or above. A minimum of 6 s.h. must be earned in non-dance department courses. The remaining 3 s.h. must be earned in 137:147 Dance Kinesiology, 137:181 Dance History, or 137:182 The Contemporary Dance Scene.

M.F.A. candidates in choreography must earn a total of 15 s.h. in elective courses numbered 100 or above. A minimum of 6 s.h. must be earned in non-dance department courses; 6 s.h. must be earned in a course or courses that provide research material for the thesis. The remaining 3 s.h. must be earned in 137:147 Dance Kinesiology, 137:181 Dance History, or 137:182 The Contemporary Dance Scene.

Facilities

The Department of Dance houses six technique studios, a movement training lab, a media classroom and library, a media laboratory, an audio recording laboratory, and its own theater for dance concerts.

Dance Courses

Primarily for Undergraduates

137:001 Beginning Tap 1-2 s.h.
Elementary techniques, steps, and performance skills for rhythm and show tap styles; enhancement of rhythmic ability through exercises, improvisation, creative activities; may include history of tap. Tap shoes required. GE: Fine Arts.

137:002 Beginning Jazz 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of jazz dance. GE: Fine Arts.

### 137:003 Beginning Ballet 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; terminology; may include history of ballet. GE: Fine Arts.

### 137:004 Beginning Modern Dance 1-2 s.h.
Basic movement fundamentals, terminology, performance skills of modern dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of modern dance. GE: Fine Arts.

### 137:011 Continuing Tap 1-2 s.h.
Continuation of 137:001. GE: Fine Arts.

### 137:012 Continuing Jazz 1-2 s.h.
Continuation of 137:002; skills for technique and performance of jazz dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of jazz dance. GE: Fine Arts.

### 137:013 Continuing Ballet 1-2 s.h.
Continuation of 137:003; skills necessary for technique and performance of ballet; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; barre and center combinations; terminology; may include history of ballet. GE: Fine Arts.

### 137:014 Continuing Modern Dance 1-2 s.h.
Continuation of 137:004; skills necessary for the technique and performance of modern dance; enhancement of flexibility, strength, body alignment, coordination, balance, kinesthetic awareness, personal range of motion, and musicality; warm-up, locomotion, center combinations; may include history of modern dance. GE: Fine Arts.

### 137:022 Intermediate Jazz 1-2 s.h.
Low intermediate technique and performance training in jazz dance; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including mobility, musicality, style; warm-up, locomotion, center combinations; may include history of jazz dance. Prerequisite: audition. GE: Fine Arts.

### 137:023 Intermediate Ballet 1-2 s.h.
Low intermediate technique and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for more advanced dance artistry, including more difficult steps, musicality, mobility, balance; basic ballet terminology, including steps, head, body, arm positions; variations in timing, changes of facing. GE: Fine Arts.

### 137:024 Intermediate Modern 1-2 s.h.
Low intermediate technique and performance training in modern dance; flexibility, strength, body alignment, and breath as foundation for more advanced dance artistry, including musicality, mobility, balance, improvisation; variations in timing, changes of facing. GE: Fine Arts.

### 137:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

### 137:030 Ballet Pointe I 1 s.h.
Basic techniques and training for ballet pointe; repetition and analysis of steps and combinations, assimilation of new material; barre and center exercises, pirouettes and turns commonly performed en pointe, learning and performing variations drawn from repertory. Prerequisite: previous ballet training and experience.

### 137:034 Beginning/Contact Improvisation 1-2 s.h.
Concepts of dance improvisation and contact improvisation; cultivation of creative freedom through the use and invention of movement; range of expression broadened through personal movement capacity, spontaneity and imagination, ability to make and commit to movement choices; new approaches to moving and movement elements such as time, space, motion, qualities, dynamics; shared weight, support, counter-balancing, elementary partnering; studio course.

137:040 Introduction to Dance Studies
Introduction to dance studies in the liberal arts; breadth and diversity of contemporary scholarship on dance; dance history, criticism, ethnography, theory, conditioning and injury prevention, improvisation, choreography, technology. 1 s.h.

137:047 Topics in Body Conditioning
Somatic training techniques that address conditioning needs of dancers--yoga for dancers, pilates, release techniques; other somatic studies related to injury prevention, concentration, flexibility, efficient movement, strength training. Prerequisite: dance major or minor standing. 2 s.h.

137:050 Dance Production
Scenic design, costuming, lighting, audio/video, publicity; visits by professional guest lecturers, field trips to creative shops; projects. 3 s.h.

137:051 Production: Run Crew
Experience as run crew member in scenery, props, or costumes; or light board, sound board, or follow-spot operator; for mainstage production. Prerequisite: 049:044 or 137:050 or consent of instructor. Same as 049:045. 1-2 s.h.

137:060 Music Fundamentals in Dance
Relationship between dance and music; basic musical concepts, including rhythm, melody, major and minor scales, key signatures and intervals, triads, seventh chords, tonality; concepts experienced through free and guided movement exploration and improvisation; brief history of 20th century to present; visits by performers and presenters. 2 s.h.

137:070 Choreography I
Introduction to theories and practices of creating choreography; locating varied sources for movement; elementary considerations of choreographic form; development of ideas, impulses, and initial inspirations into short works; fundamentals of giving and receiving critical feedback; articulation of thoughts and experience as composers and watchers of choreography; exposure to choreographic concerns supported by video and reading. 2 s.h.

137:071 Choreography II
Continuation of 137:070; development of intermediate choreographic skills; emphasis on cultivation of individual choreographic voice through expansion of vocabulary, discovery of complex ways to form and arrange, and use of widening range of methods and types of resources. 2 s.h.

137:080 Dance and Society
Role of dance and other forms of physical culture in nations worldwide, including the United States, Brazil, West Africa, France, Germany; relationships between dance and culture (e.g., function of dance in spiritual, celebratory, social, political contexts) examined through ethnographic techniques; exchange of dance forms and ideas about the body from old to new worlds and back; aesthetic issues related to concert dance (e.g., performance, choreography, spectatorship, criticism, production). GE: Fine Arts, Humanities. Same as 188:080. 3 s.h.

137:103 Major Ballet I
Builds on 137:023; intermediate technical and performance training in ballet; flexibility, strength, body alignment, and coordination as foundation for introduction of more advanced aspects of dance artistry, including steps, musicality, mobility, balance; terminology related to barre and center vocabulary, including steps, head, body, and arm positions; practice of steps and combinations, variations in timing, changes of facing. Prerequisite: consent of instructor. GE: Fine Arts. 1-3 s.h.

137:104 Major Modern Dance I
Builds on 137:024; intermediate technical and performance training in modern dance; physical and mental skills for transition to more advanced dance--physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing; basic physical concepts underlying clear and efficient movement; assimilation of new movement material; center of gravity and its role in body mobilization and control; personal movement choices, and expressive range. Prerequisite: consent of instructor. GE: Fine Arts. 1-3 s.h.
137:106 Dance Performance 0-1 s.h.
Credit for rehearsal hours and performance of dance works in produced dance concerts. Prerequisite: audition and/or concert adjudication. GE: Fine Arts.

137:107 Repertory Dance Company 0-4 s.h.
Advanced repertory studies; learning and performing multiple works by professional guest artists, faculty, and invited graduate students; collaborative creation and performing in community outreach lecture-demonstration throughout Iowa and the region. Prerequisite: audition.

137:113 Major Ballet II 1-3 s.h.
High intermediate training in ballet technique and performance; physical and mental skills necessary for more advanced work--physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Prerequisite: consent of instructor. GE: Fine Arts.

137:114 Major Modern Dance II 1-3 s.h.
High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work--physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. Prerequisite: consent of instructor. GE: Fine Arts.

137:120 Floor Barre 2 s.h.
Introduction to Beamish-based floor barre technique. Prerequisites: 137:023 and consent of instructor.

137:123 Major Ballet III 1-3 s.h.
Advanced training in ballet technique and performance; physical and mental skills necessary for professional work--physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Prerequisite: consent of instructor. GE: Fine Arts.

137:124 Major Modern Dance III 1-3 s.h.
Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work--physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range; may include partnering exercises for investigation of weight exchange, timing, expressivity. Prerequisite: consent of instructor. GE: Fine Arts.

137:130 Major Modern Dance IV 1-2 s.h.
Professional technique and performance training in modern dance. Prerequisite: consent of instructor.

137:133 Ballet Pointe II 1-2 s.h.
Intermediate/advanced techniques and training for ballet pointe work; repetition and analysis of steps and combinations, assimilation of new material; barre and center exercises, pirouettes and turns commonly performed en pointe, learning and performing variations drawn from repertory. Prerequisite: consent of instructor.

137:134 Improvisation I 1-2 s.h.
Introduction to movement as research; experimental process as vehicle for invention, creative freedom, aesthetic range; development of kinesthetic imagination, awareness, creative problem solving; introduction to issues of artistic originality and authenticity; practical integration of improvisation and composition through spontaneous manipulation of time, space, and energy; knowledge of creative process supported by reading and individual research.

137:135 Improvisation II 2 s.h.
Advanced concepts in compositional improvisation; in-depth individual exploration, spontaneous ensemble composition; increasing authenticity, depth, and range; integrity in relating to the whole ensemble; connecting creative process to other bodies of knowledge; making contact with emerging premise; reading and discussion as integration of conceptual and experiential; speaking and writing as improvisational process. Prerequisites: 137:134 and consent of instructor.
137:137 Partnering Class
The art of partnering in dance, from salsa to Swan Lake; power sharing on the dance floor, including supported poses, balance, musical and physical timing, unity of movement, eloquence of gesture; for advanced dancers with strong coordination skills.

137:139 Acting for Dancers
Beginning acting for dancers; spontaneity and expression, sources of action and reaction through theater games; emotional journey in effective drama and comedy; drama, comic structure, and tension through character and script analysis. Prerequisite: consent of instructor.

137:140 Honors Project in Dance
Research, choreographic, reconstruction, or performance project under guidance of a faculty advisor. Prerequisite: senior standing.

137:141 B.F.A. Senior Project in Dance
Senior year choreographic/performance capstone to complete B.F.A. in dance under supervision of faculty adviser; culminates in public showing or produced concert. Prerequisites: admitted to B.F.A. degree program in dance and senior standing.

137:143 Elementary Ballet Pedagogy
Methods, materials, concepts for teaching ballet techniques.

137:144 Teaching of Modern Dance
Practices of teaching modern dance; information and experience for developing an individualized approach to teaching; educational methodology for defining essential elements of a modern class, approaches for planning and structuring classes.

137:147 Dance Kinesiology
Body science related to demands of dance; structural and muscular analysis for efficient, effective dance training and prevention of injuries; investigation of skeletal and ligamentous structure for working knowledge of how the body produces movement; joint actions and restrictions, common injuries to those sites; attachments of the voluntary muscles, pathways and potential actions; neuromuscular analysis of an action; functional skeletal alignment; how individual differences may affect movement performance. Prerequisite: 027:053. Same as 049:108.

137:149 Honors Studies in Dance
Choreography, performance, production, Labanotation, dance history, or pedagogy. Prerequisite: g.p.a. of 3.33 or higher.

137:157 Brazilian Carnival
Dance, music, historical, and social contents of Brazilian Carnival production, critical theories of performance, religious backgrounds, and theatre making in carnival parades. Prerequisite: consent of instructor.

137:160 Movement for Performers
Movement as support for sound production, artistic expression, and wellness; Bartenieff Fundamentals, Laban Movement Analysis, or principles of the Alexander Technique as methods of organizing and integrating body movement and expanding expressive range; studio course with practice, journal, observations, project applying movement skills to student's area of performance/study. Same as 025:167, 049:105, 188:167.

137:161 The Arts in Performance

137:170 Choreography III
Continuation of 137:071; increased emphasis on invention, clarity, sophistication, and development of complete works; creation of sharply defined mature movement worlds; increasingly thorough consideration of sources and methods, responsibility for applying course work to self-defined artistic concerns and emerging individual aesthetic; advanced theories and methods through video, reading, choreographic research.

137:171 Choreography IV
Continuation of 137:170; advanced theories and practices of choreography; complex concepts, methods, applications; analytical and creative connections with bodies of knowledge across the liberal arts and sciences; complete development of multiple works; advanced practice in critical feedback and articulation of ideas about process and product; development through reading, video, extensive creative research.

137:172 Independent Choreography
Credit for creation of independent choreographic project, developed under guidance of faculty advisor, that results in production of a dance work. Prerequisite: consent of faculty project advisor.

137:174 Introduction to Afro-Cuban Dance
Introduction to the dance, drumming, and songs of the Afro-Cuban folkloric traditions; emphasis on dance. May participate in UI Afro-Cuban Drum and Dance ensemble. Pre- or corequisite: 137:175 or 188:175. Same as 188:174.

137:175 Afro-Cuban Drum and Dance Performance
Dance repertory for the UI Afro-Cuban Drum and Dance Ensemble. Performance pieces based on dance, drumming, songs of the Afro-Cuban folkloric traditions. May participate in UI Afro-Cuban Drum and Dance Ensemble. Prerequisites: audition and 025:173 or 137:174 or 188:173 or 188:174. Same as 188:175.

137:181 Dance History
Dance history in the 19th and 20th centuries; changes in dance training and technique, theory, composition, performance practices in context of broader social, political, and cultural trends; how dance and choreographic practices have changed over time, relationships between social ideas about embodiment and production of dance forms, precedents for contemporary dance practices in past forms.

137:182 The Contemporary Dance Scene
Historical, theoretical, and practical elements of contemporary dance; the term "postmodern" and its associations with dance, performing arts, contemporary culture; relationships between process and product, identity and subjectivity, artistic intent and authorship, meaning and intertextuality; possibility of art as a form of dissent; theory and practice placed in a dialectic; analysis and synthesis of previous research. Same as 188:182.

137:190 Independent Study
Credit for an individual student-designed project coordinated with a faculty advisor. Prerequisites: sophomore or higher standing and consent of instructor.

Primarily for Graduate Students

137:200 Graduate Seminar in Dance
Research, careers, administrative, educational, professional, artistic topics.

137:201 Graduate Production Practicum
Scenery and costume design, lighting, audio/video, publicity.

137:202 Theories of Dance and the Body
Theoretical trends in studies of dance and physical bodies; performative and choreographic aspects of being. Same as 188:202.

137:206 Graduate Dance Performance
Credit for rehearsal hours and performance of dance works in produced dance concerts. Repeatable. Prerequisite: audition and/or concert adjudication.

137:213 Graduate Majors Ballet II
High intermediate technique and performance training; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:214 Graduate Majors Modern II

1-3 s.h.
High intermediate technical and performance training in modern dance; physical and mental skills necessary for more advanced work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body, consciousness of personal movement choices and expressive range. Repeatable.

137:223 Graduate Majors Ballet III 1-3 s.h.
Advanced ballet technique and performance training for proficient dancers; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:224 Graduate Majors Modern III 1-3 s.h.
Advanced technical and performance training in modern dance; physical and mental skills necessary for professional work—physical stamina, strength, flexibility, articulation, coordination, musicality, phrasing, understanding of basic physical concepts underlying clear and efficient movement, capacity to assimilate new movement material, awareness of the center of gravity and its role in mobilization and control of the body. Repeatable.

137:230 Graduate Major Modern IV 1-2 s.h.
Professional technique and performance training in modern dance. Prerequisite: consent of instructor.

137:234 Graduate Improvisation I 1-2 s.h.
Dance improvisation. Prerequisite: consent of instructor.

137:235 Graduate Improvisation II 2 s.h.
Advanced improvisation. Prerequisite: consent of instructor.

137:270 Graduate Choreography I 2 s.h.
The craft of choreography and the creative process; elements of gesture, motion, shape, space, form; vocabulary for discussing and analyzing choreographic works; enhancement of ability to invent and develop movement ideas.

137:271 Graduate Choreography II 2 s.h.
Continuation of 137:270.

137:272 Graduate Choreography III 2 s.h.
Continuation of 137:271; advanced choreographic concepts, methods, and applications with focus on the creative mind and choreographic process; concepts and experiences that support development of advanced choreographic skills and innovative dances.

137:273 Graduate Choreography IV 2 s.h.
Advanced choreography concepts, methods, applications.

137:274 Graduate Independent Choreography arr.
Credit for creation of an independent choreographic project, developed under guidance of faculty advisor, that results in production of a dance work. Prerequisite: consent of faculty project advisor.

137:275 Collaborative Performance 1-4 s.h.
Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects. Same as 049:275, 188:275.

137:277 Thesis arr.

137:290 Graduate Independent Study arr.
Credit for individually designed project coordinated with a faculty advisor. Prerequisite: consent of faculty project advisor.
Division of Performing Arts

**Director:** Alan MacVey  
**Degree:** B.A. in Performing Arts Entrepreneurship  
**Undergraduate nondegree program:** Certificate in Performing Arts Entrepreneurship

The Division of Performing Arts includes the Department of Dance, the School of Music, and the Department of Theatre Arts. The division fosters interdisciplinary collaboration among these units, coordinates artistic and academic activities, and sponsors a full array of performances and symposia. Performances are supported by professional staff in the division's Performing Arts Production Unit.

The division's individual academic units offer undergraduate and graduate courses and degree programs in creative, performance, scholarly, and theoretical areas. They present an extensive schedule of dance productions, faculty and student recitals, ensemble concerts, and mainstage and gallery theater productions.

The division also partners with the John Pappajohn Entrepreneurial Center, in the Tippie College of Business, to offer the Certificate in Performing Arts Entrepreneurship. The certificate program combines course work in accounting, marketing, and financial management with courses focused on arts management and leadership practices in commercial as well as nonprofit arts organizations.
Economics

Chair: John L. Solow
Professors: Gary C. Fethke (Leonard A. Hadley Professor of Leadership), John W. Fuller, John F. Geweke (Harlan E. McGregor Chair in Economic Theory), Srinhar Govindan (Lloyd J. and Thelma W. Palmer Research Fellow), Marylyne Beth Ingram (C. Woody Thompson Professor of Business), Daniel J. Kovenock (Henry B. Tippie Research Professor of Economics), Forrest D. Nelson (Henry B. Tippie Research Fellow), George R. Neumann (George Daly Professor of Economics), B. Ravikumar (Henry B. Tippie Research Professor of Economics), Raymond G. Riezman (Henry B. Tippie Research Professor of Economics), Charles H. Whiteman (Leonard A. Hadley Chair in Leadership)
Associate professors: John L. Solow (Michael Sandler Research Fellow), Gustavo J. Ventura (Dore Research Fellow)
Assistant professors: Ayca Kaya, Elena Pastorino, Guillaume Vandebroucke, Yuzhe Zhang
Lecturers: Stacey L. Brook, Jennifer L. Fuhrman, Blake Whitten
Undergraduate degrees: B.A., B.S., B.B.A. in Economics
Undergraduate nondegree program: Minor in Economics
Graduate degrees: M.A., Ph.D. in Economics
Web site: http://www.tippie.uiowa.edu/economics

Economics is the study of how societies allocate limited resources to achieve competing ends. Using both empirical and deductive methods, economics analyzes incentives, constraints, organizational forms, and market forces to understand patterns of production, exchange, and consumption of goods and services. It treats diverse issues such as wealth and poverty, government expenditures and taxation, prosperity and depression, inflation and unemployment, relations between management and labor, economic growth, environmental protection, health care delivery, the war on drug abuse, free trade versus protectionism, U.S. competitiveness in international markets, and the quality of American education.

The Department of Economics offers degree programs for undergraduates and for graduate students.

Undergraduate Programs

The department offers three undergraduate degrees: a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) in economics awarded by the College of Liberal Arts and Sciences, and a Bachelor of Business Administration (B.B.A.) in economics awarded by the Tippie College of Business.

The B.A. is designed to achieve a balance of economic theory, mathematical tools, and field applications. The B.S. maintains a similar balance but emphasizes development of analytical tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

Each program provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

All students majoring in economics choose one of three tracks: business economics, policy economics, or analytical economics. The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue quantitative, or in seeking a decision-making position in the public or private sector. The applied field course requirement varies, depending on the student's choice of track.

Bachelor of Arts

The Bachelor of Arts in economics requires a minimum of 120 s.h., including 32 s.h. of work for the major. The program provides a balance of economic theory, mathematical tools, and field applications. It offers good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

The major requires a set of courses in mathematics and statistics (11 s.h.), a set in economic theory (6 s.h.), and a set of applied field courses (15 s.h.). Students must choose one of three tracks: business economics, policy economics, or analytical economics. The applied field courses vary depending on the student's choice of track.

The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is...
for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue
technical and/or analytical work in the public or private sector.

All B.A. students in economics must complete the College of Liberal Arts and Sciences General Education Program. Students may count a maximum of 6 s.h. of transfer or correspondence credit toward the required 21 s.h. in 100-level economics courses; additional transfer or correspondence credit must be approved by the director of undergraduate studies. Students should take the economic theory courses (06E:104 Microeconomic Theory or 06E:106 Advanced Microeconomics, and 06E:105 Macroeconomics) at The University of Iowa.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see “Prerequisites” below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.A.) requires the following courses.

Mathematics and Statistics Courses

06E:071 Statistics for Strategy Problems 3 s.h.
22M:017 Calculus and Matrix Algebra for Business 4 s.h.
22S:008 Statistics for Business 4 s.h.

Economic Theory Courses

06E:104 Microeconomic Theory 3 s.h.
or
06E:106 Advanced Microeconomics 3 s.h.
06E:105 Macroeconomics 3 s.h.

Applied Field Courses

Five courses are required; course selection is determined by the student's choice of track.

Business Economics Track

Five of these:
06A:002 Managerial Accounting 3 s.h.
06E:111 Personnel Economics 3 s.h.
06E:117 Money, Banking, and Financial Markets 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:141 Industry Analysis 3 s.h.
06E:160 Household Finance 3 s.h.
06J:048 Introduction to Management 3 s.h.

Policy Economics Track

Four of these:
06E:113 Health Economics 3 s.h.
06E:119 Policy Analysis 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:133 Environmental and Natural Resource Economics 3 s.h.
06E:135 Regional and Urban Economics 3 s.h.
06E:145 Transportation Economics 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:165 Sports Economics 3 s.h.
06E:171 Antitrust Economics 3 s.h.
06E:172 Law and Economics 3 s.h.
Analytical Economics Track

Four of these:

- 06E:173 International Economics
- 06E:174 Monetary Economics
- 06E:175 Labor Economics
- 06E:176 Public Sector Economics
- 06E:177 Industrial Organization
- 06E:183 Natural Resource Economics
- 06E:187 Mathematical Economics

One additional economics course numbered 06E:111 - 06E:189

Prerequisites

Prerequisites for most 100-level courses in economics: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics, or consent of instructor

Prerequisites for 06E:104 Microeconomic Theory: 06E:001 Principles of Microeconomics and 22M:017 Calculus and Matrix Algebra for Business, or consent of instructor

Prerequisites for 06E:105 Macroeconomics: 06E:002 Principles of Macroeconomics and 22M:017 Calculus and Matrix Algebra for Business

Prerequisite for 06E:071 Statistics for Strategy Problems: 22S:008 Statistics for Business

Prerequisites for courses numbered 06E:171 and above: 06E:104 Microeconomic Theory or 06E:105 Macroeconomics, or both, depending on the course

Bachelor of Science

The Bachelor of Science in economics requires a minimum of 120 s.h., including 33-35 s.h. of work for the major. The program addresses economic theory, mathematical tools, and field applications, with an emphasis on developing skill using analytic tools. It offers good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

The major requires a set of courses in mathematics and statistics (15-17 s.h.), a set in economic theory (6 s.h.), and a set of applied field courses (12 s.h.). Students must choose one of three tracks: business economics, policy economics, or analytical economics. The applied field courses vary depending on the student's choice of track.

The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue technical and/or analytical work in the public or private sector.

All B.S. students in economics must complete the College of Liberal Arts and Sciences General Education Program.

Students may count a maximum of 6 s.h. of transfer or correspondence credit toward the required 18 s.h. in 100-level economics courses; additional transfer or correspondence credit must be approved by the director of undergraduate studies. Students should take the economic theory courses (06E:104 Microeconomic Theory or 06E:106 Advanced Microeconomics, and 06E:105 Macroeconomics) at The University of Iowa.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see "Prerequisites" below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.S.) requires the following courses.

Mathematics and Statistics Courses

- 06E:184 Introduction to Econometrics
- 22M:025 Calculus I
- 22M:026 Calculus II

One additional economics course numbered 06E:111 - 06E:189
22S:120 Probability and Statistics 4 s.h.
or
22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.

The department recommends that students planning to pursue a graduate degree in economics take 22S:130 Introduction to Mathematical Statistics I and 22S:131 Introduction to Mathematical Statistics II in place of 22S:120 Probability and Statistics, and that they take additional courses in mathematics, including 22M:027 Introduction to Linear Algebra, 22M:028 Calculus III, and 22M:100 Introduction to Ordinary Differential Equations.

Economic Theory Courses

06E:104 Microeconomic Theory 3 s.h.
or
06E:106 Advanced Microeconomics 3 s.h.

06E:105 Macroeconomics 3 s.h.

Applied Field Courses

Four courses are required; course selection is determined by the student's choice of track.

Business Economics Track

Four of these:
06A:002 Managerial Accounting 3 s.h.
06E:111 Personnel Economics 3 s.h.
06E:117 Money, Banking, and Financial Markets 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:141 Industry Analysis 3 s.h.
06E:160 Household Finance 3 s.h.
06J:048 Introduction to Management 3 s.h.

Policy Economics Track

Three of these:
06E:113 Health Economics 3 s.h.
06E:119 Policy Analysis 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:133 Environmental and Natural Resource Economics 3 s.h.
06E:135 Regional and Urban Economics 3 s.h.
06E:145 Transportation Economics 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:165 Sports Economics 3 s.h.
06E:171 Antitrust Economics 3 s.h.
06E:172 Law and Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

Analytical Economics Track

Three of these:
06E:173 International Economics 3 s.h.
06E:174 Monetary Economics 3 s.h.
06E:175 Labor Economics 3 s.h.
06E:176 Public Sector Economics 3 s.h.
Prerequisites


Prerequisites for most 100-level courses in economics: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics

Prerequisites for 06E:104 Microeconomic Theory: 06E:001 Principles of Microeconomics and 22M:017 Calculus and Matrix Algebra for Business, or consent of instructor

Prerequisites for 06E:105 Macroeconomics: 06E:002 Principles of Macroeconomics and 22M:017 Calculus and Matrix Algebra for Business

Prerequisites for courses numbered 06E:171 and above: 06E:104 Microeconomic Theory or 06E:105 Macroeconomics, or both, depending on the course

Prerequisite for 06E:184 Introduction to Econometrics: 22S:120 Probability and Statistics or 22S:131 Introduction to Mathematical Statistics II

Bachelor of Business Administration

The Bachelor of Business Administration in economics requires a minimum of 120 s.h., including 18 s.h. of work for the major. The program emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management. It provides good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

All students must complete the B.B.A. common requirements: the General Education courses, the prerequisites for admission to the Tippie College of Business, and the business core; see "Common Requirements" under Bachelor of Business Administration in the Tippie College of Business section of the Catalog.

The major requires a set of courses in mathematics and statistics, which students take as part of the B.B.A. common requirements; a set in economic theory (6 s.h.); and a set of applied field courses (12 s.h.). Students majoring in economics choose one of three tracks: business economics, policy economics, or analytical economics. The applied field courses vary depending on the student's choice of track.

The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue technical and/or analytical work in the public or private sector.

Students may request permission to apply a limited amount of transfer or correspondence credit toward requirements for the major, but they should take the economic theory courses (06E:104 Microeconomic Theory or 06E:106 Advanced Microeconomics, and 06E:105 Macroeconomics) at The University of Iowa.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see "Prerequisites" below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.B.A.) requires the following courses.

Mathematics and Statistics Courses

Students take these courses as part of the B.B.A. common requirements.

06E:071 Statistics for Strategy Problems 3 s.h.
22M:017 Calculus and Matrix Algebra for Business 4 s.h.
22S:008 Statistics for Business 4 s.h.

Economic Theory Courses

06E:104 Microeconomic Theory 3 s.h.
or
06E:106 Advanced Microeconomics 3 s.h.

06E:105 Macroeconomics 3 s.h.

Applied Field Courses

Four courses are required; course selection is determined by the student's choice of track.

Business Economics Track

Four of these:

06E:111 Personnel Economics 3 s.h.
06E:117 Money, Banking, and Financial Markets 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:141 Industry Analysis 3 s.h.
06E:160 Household Finance 3 s.h.

Policy Economics Track

Three of these:

06E:113 Health Economics 3 s.h.
06E:119 Policy Analysis 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:133 Environmental and Natural Resource Economics 3 s.h.
06E:135 Regional and Urban Economics 3 s.h.
06E:145 Transportation Economics 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:165 Sports Economics 3 s.h.
06E:171 Antitrust Economics 3 s.h.
06E:172 Law and Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

Analytical Economics Track

Three of these:

06E:173 International Economics 3 s.h.
06E:174 Monetary Economics 3 s.h.
06E:175 Labor Economics 3 s.h.
06E:176 Public Sector Economics 3 s.h.
06E:177 Industrial Organization 3 s.h.
06E:183 Natural Resource Economics 3 s.h.
06E:187 Mathematical Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

Prerequisites

Prerequisites for most 100-level courses in economics: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics, or consent of instructor

Prerequisites for 06E:104 Microeconomic Theory: 06E:001 Principles of Microeconomics and 22M:017 Calculus and Matrix Algebra for Business, or consent of instructor

Prerequisites for 06E:105 Macroeconomics: 06E:002 Principles of Macroeconomics and 22M:017 Calculus and Matrix Algebra for Business
Prerequisite for 06E:071 Statistics for Strategy Problems: 22S:008 Statistics for Business
Prerequisites for courses numbered 06E:171 and above: 06E:104 Microeconomic Theory or 06E:105 Macroeconomics, or both, depending on the course

Four-Year Graduation Plan

Bachelor of Arts, Bachelor of Science

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

These checkpoints apply to both the Bachelor of Arts and the Bachelor of Science.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one-half of the semester hours required for graduation, 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics, and the math component of quantitative courses required for major

Before the seventh semester begins: three-quarters of the semester hours required for graduation, 06E:104 Microeconomic Theory and 06E:105 Macroeconomics, and one 100-level economics course

Before the eighth semester begins: three 100-level economics courses and the statistics component of the quantitative course requirement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Business Administration

The following checkpoints are designed for students who enter the University as first-year pre-business students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline.

Students must take 06B:100 Foundations of Business during their first year after admission to the Tippie College of Business.

Before the third semester begins: 06E:001 Principles of Microeconomics or 06E:002 Principles of Macroeconomics, 22M:017 Calculus and Matrix Algebra for Business, and 22S:008 Statistics for Business, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 06A:001 Introduction to Financial Accounting, 06A:002 Managerial Accounting, and 06E:001 Principles of Microeconomics or 06E:002 Principles of Macroeconomics (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

Honors

Bachelor of Arts, Bachelor of Science

Students in the College of Liberal Arts and Sciences working toward a B.A. or B.S. in economics are encouraged to take part in the honors program in economics, which provides opportunities for high-achieving students to pursue special research interests. Honors students in economics must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

To enter the honors program in economics, students must complete 06E:104 Microeconomic Theory and 06E:105 Macroeconomics before the senior year. Honors students typically register for 06E:194 Honors Seminar in the fall of the senior year. Then they define and complete a research project under the guidance of a supervising faculty member, earning up to 6 s.h. in 06E:195 Honors Thesis in Economics. The thesis is presented orally to a committee of three faculty members, typically the undergraduate honors advisor, the student's research supervisor, and a third
faculty member agreed upon by the student and the honors advisor.

Interested students should consult the honors advisor by the second semester of their junior year.

**Bachelor of Business Administration**

The Tippie College of Business offers qualified B.B.A. students the opportunity to pursue honors study. For more information, contact the Undergraduate Program Office or see "B.B.A. with Honors" in the Tippie College of Business section of the Catalog.

**Minor**

The minor in economics requires a minimum of 15 s.h. in economics courses, including 12 s.h. taken at The University of Iowa in courses numbered above 06E:100. Students must maintain a g.p.a. of at least 2.00 in the minor.

**Course Work for Nonmajors**

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of other majors or the General Education Program. The introductory courses 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics are approved for General Education in social sciences; they introduce the field of economics and the specialized topics of upper-division courses. The intermediate theory courses 06E:104 Microeconomic Theory and 06E:105 Macroeconomics provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics can be related to majors in many other fields. For example, political science majors could elect 06E:119 Policy Analysis and 06E:125 Global Economics and Business; global studies majors, 06E:133 Environmental and Natural Resource Economics; pre-law students, 06E:171 Antitrust Economics and 06E:172 Law and Economics; mathematics and engineering majors, 06E:104 Microeconomic Theory and 06E:187 Mathematical Economics; and statistics majors, 06E:184 Introduction to Econometrics.

Some students combine related interests by pursuing double majors in economics and another field, such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

**Undergraduate Economics Forum**

Students are invited to join the undergraduate Economics Forum. The group sponsors programs to help students plan for careers or graduate study and holds social events, special lectures, and round-table discussions. It provides opportunities for students to meet other economics majors and department faculty members.

**Graduate Programs**

The department offers a Master of Arts and a Doctor of Philosophy in economics. It also offers a joint Doctor of Philosophy/Juris Doctor with the College of Law; see "Joint Ph.D./J.D." later in this section.

**Master of Arts**

The Master of Arts is offered only to students working toward a Ph.D. in economics.

**Doctor of Philosophy**

The Doctor of Philosophy in economics requires a minimum of 72 s.h. of graduate credit. The program provides rigorous training in economic theory, econometrics, and applied economics. It has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Application deadline for admission and financial support is January 15 for fall semester entry.

**CORE SEQUENCE**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06E:200</td>
<td>Economic Analysis I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:203</td>
<td>Microeconomics I</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
06E:204 Macroeconomics I 3 s.h.

Second Semester

06E:201 Economic Analysis II 3 s.h.
06E:205 Microeconomics II 3 s.h.
06E:206 Macroeconomics II 3 s.h.

Third Semester

06E:221 Econometrics 3 s.h.

Fourth Semester

06E:222 Applied Econometrics 3 s.h.

QUALIFYING EXAMINATION

The qualifying examination is normally taken the summer after the first year.

RESEARCH PAPER

The research paper is normally completed the summer after the second year.

MAJOR FIELD COURSES

Each student chooses a major study area in addition to the core courses. The requirement for the major area is a minimum of 24 s.h. of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields.

DISSERTATION PROPOSAL AND COMPREHENSIVE EXAMINATION

Students must defend a dissertation proposal in a comprehensive examination within one year of completing the research paper requirement.

DISSERTATION

Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Joint Ph.D./J.D.

The Department of Economics and the College of Law offer a joint Ph.D./J.D. program; see Juris Doctor in the College of Law section of the Catalog. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Special Seminar

Each year the department offers a seminar program that brings eminent economists from other universities and from government agencies to The University of Iowa campus. Presentations by Department of Economics faculty members and students also are featured.

Economics Courses

Primarily for Undergraduates

Note: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics may be taken in either order or simultaneously. They are approved for General Education in social sciences for B.A. and B.S. students.
**06E:001 Principles of Microeconomics**
Organization, workings of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. B.B.A. students cannot use this course for GE: social sciences. GE: Social Sciences.

**06E:002 Principles of Macroeconomics**
National income and output, employment and inflation; money, credit; government finance; monetary, fiscal policy; economic growth, development; international finance. B.B.A. students cannot use this course for GE: social sciences. GE: Social Sciences.

**06E:029 First-Year Seminar**
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

**06E:071 Statistics for Strategy Problems**
Continuation of 22S:008; working knowledge of statistical techniques, scientific data-based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: 22M:017 and 22S:008.

**06E:104 Microeconomic Theory**
Economic theory of the behavior of consumers, producers, and other economic agents; role of markets in coordinating economic activity, conditions that markets require for efficient allocation of resources; market imperfections; strategic behavior of economic agents. Prerequisites: 06E:001 and 22M:017, or consent of instructor.

**06E:105 Macroeconomics**
Measurement of macroeconomic indicators; economic growth and business cycles; use of macroeconomic models to study the role of government fiscal and monetary policies. Prerequisites: 06E:002 and 22M:017; or consent of instructor.

**06E:106 Advanced Microeconomics**
Mathematical treatment of the economic theory of the behavior of consumers, producers, and other economic agents; the role of markets in coordinating economic activity and the conditions required by those markets for an efficient allocation of resources; market imperfections; and the strategic behavior of economic agents. Prerequisites: 06E:001, and 22M:017 or equivalent (22M:025 preferred).

**06E:111 Personnel Economics**
Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; returns to education; family decisions. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

**06E:113 Health Economics**
Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution; cost-effectiveness, financing of medical costs, role of government. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

**06E:117 Money, Banking, and Financial Markets**
Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

**06E:119 Policy Analysis**
Economic functions of government in modern economies; economic decision making; budgetary processes; effects of government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

**06E:125 Global Economics and Business**
Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.
06E:129 Economic Growth and Development 3 s.h.
Determinants of rising living standards; accumulation of physical and human capital; predictions of economic growth models compared to observed changes in living standards. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:133 Environmental and Natural Resource Economics 3 s.h.
Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:135 Regional and Urban Economics 3 s.h.
Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:141 Industry Analysis 3 s.h.
Structural evolution; imperfect competition, resource allocation; development of public policy on monopoly; selected industries. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:145 Transportation Economics 3 s.h.
Overview of transportation markets--intercity, rural, urban; transportation modes--rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Prerequisites: 06E:001 and 06E:002, or consent of instructor. Same as 044:133, 102:133.

06E:158 American Economic History 3 s.h.
Emphasis on role of population and technology. Prerequisites: 06E:001 and 06E:002 or consent of instructor for economics majors; 06E:001 and 16A:061 for nonmajors. Same as 16A:144.

06E:160 Household Finance 3 s.h.
Micro- and macroeconomic theory applied to economic decisions of families, households; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:164 Economies in Transition 3 s.h.
Emerging markets and newly industrialized nations in Asia, Latin America, the former Soviet Union; developments in these regions over past decades--financial crises, industrialization, economic reform, privatization, impact of globalization, development of human capital, income distribution; role of institutions in the transition from poor to rich nation. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:165 Sports Economics 3 s.h.
Theory and literature of economic issues in professional sports; issues such as relative advantages of large-and small-market teams, city subsidies for baseball and football stadiums, star players' true value to their teams; ideas from introductory economics (such as demand and cost curves) combined with additional economic theory, statistical evidence, and information about particular sports. Prerequisites: 06E:001 and 06E:002.

06E:169 Introductory Topics in Economics arr.
Topics vary.

06E:171 Antitrust Economics 3 s.h.
Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisite: 06E:104 or 091:208 or consent of instructor.

06E:172 Law and Economics 3 s.h.
Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being. Prerequisite: 06E:001 or consent of instructor.

06E:173 International Economics 3 s.h.
Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers; regional trade agreements and the World Trade Organization. Prerequisites: 06E:104 and 06E:105, or graduate standing.
06E:174 Monetary Economics
Demand for and supply of money; money's role in economy; empirical studies of money's impact; problems with monetary control. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:175 Labor Economics
Labor supply and demand; investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, immigration. Prerequisite: 06E:104.

06E:176 Public Sector Economics
Economic functions of government; budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:177 Industrial Organization
Market structure; effects of business practices, informational problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisite: 06E:104.

06E:179 History of Economic Thought
Evolution of economics as a social science; ideas of Smith, Ricardo, Malthus, Marx, Marshall, Keynes, and their major critics. Prerequisites: 06E:104 and 06E:105.

06E:183 Natural Resource Economics
Economics of natural resources; interaction between economic theory, empirical evidence, and public policy; land, water, fish, trees, minerals; externalities. Prerequisite: 06E:104 or consent of instructor.

06E:184 Introduction to Econometrics
Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

06E:187 Mathematical Economics
Mathematical structure of economic principles, problems, systems; may include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:189 Advanced Topics in Economics
Topics vary. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:190 Federal Reserve Challenge
Experience doing what Federal Reserve economists do every day: study the real U.S. economy, make forecasts and policy recommendations, defend their views to academic and professional economists; development of analytical skills, teamwork, how to build presentations. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

For Advanced Undergraduates

06E:194 Honors Seminar
Research topics and methods in business. Prerequisites: business honors standing and consent of business honors director. Same as 06B:194.

06E:195 Honors Thesis in Economics
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06E:196 Readings and Independent Study in Economics

06E:199 Academic Internship
Participation in approved internship program (e.g., Washington Center Internships). Prerequisite: consent of instructor.

**Primarily for Graduate Students**

With consent of the department chair, qualified undergraduates may enroll in courses listed for graduate students.

**06E:200 Economic Analysis I**

Basic metric topology, convex analysis, function spaces, measure theory and integration.  
3 s.h.

**06E:201 Economic Analysis II**

Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption.  
3 s.h.

**06E:203 Microeconomics I**

Consumer choice theory, producer theory, choice under uncertainty, basic game theory. Offered fall semesters. Prerequisite: consent of instructor.  
3 s.h.

**06E:204 Macroeconomics I**

Economic growth, business cycles, money and inflation. Offered fall semesters. Prerequisite: 06E:201 or consent of instructor.  
3 s.h.

**06E:205 Microeconomics II**

General equilibrium and welfare analysis, adverse selection, the principal-agent problem, social choice, mechanism design. Offered spring semesters. Prerequisite: 06E:203 or consent of instructor.  
3 s.h.

**06E:206 Macroeconomics II**

Dynamic macroeconomic models; stochastic macroeconomics; time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 06E:204 or consent of instructor.  
3 s.h.

**06E:211 Mathematical Economics I**

Convex analysis in economic theory; ordinal and cardinal preference relations; quasiconcave, concave numerical representations; separation principle for convex sets--linear programming, concave programming; Brouwer fixed point theorem; existence of competitive equilibrium. Prerequisite: 06E:205 or consent of instructor.  
3 s.h.

**06E:221 Econometrics**

Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisite: 22S:154 or equivalent.  
3 s.h.

**06E:222 Applied Econometrics**

Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 06E:221.  
3 s.h.

**06E:223 Econometric Theory I**

Inference from data and theory in economic models; emphasis on decision making and simulation methods. Prerequisite: 06E:222 or consent of instructor.  
3 s.h.

**06E:234 International Business-M.B.A.**

Problems in international business; how to export, how to deal with import competition, international joint ventures; country studies. Prerequisite: consent of instructor.  
3 s.h.

**06E:235 International Trade Theory**

The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade. Prerequisite: consent of instructor.  
3 s.h.

**06E:241 Macroeconomics III**

Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: 06E:205 and 06E:221.  
3 s.h.
06E:245 Monetary Theory  3 s.h.
Research at the frontier of monetary theory and policy; overlapping generations models, search models of money, representative agent monetary models, intermediation and banking theory, and financial contracts.

06E:250 Labor Economics  3 s.h.
Problems and models, including intertemporal models of labor markets; uncertainty and labor market activity; retirement decisions, economic theories of fertility; economics of discrimination; job search models; economic models of unions; bargaining and strikes, public sector labor markets; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 06E:205, and 06E:184 or 06E:221.

06E:271 Industrial Organization  3 s.h.
The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 06E:205 and 06E:211.

06E:299 Contemporary Topics in Economics  3 s.h.
Topics not offered in other courses. Repeatable. Prerequisite: consent of instructor.

06E:300 Readings in Economics  arr.
Prerequisite: consent of instructor.

06E:301 Thesis in Economics  arr.
Prerequisite: consent of instructor.

Advanced Graduate Seminars

06E:310 Seminar in Economic Theory  arr.
Prerequisite: consent of instructor.

06E:311 Seminar in Economic Theory II  arr.

06E:321 Workshop in Microeconomics  1 s.h.
Prerequisite: consent of instructor.

06E:322 Workshop in Macro and Monetary Economics  1 s.h.
Prerequisite: consent of instructor.
Undergraduate Programs

The College of Liberal Arts and Sciences, in collaboration with the College of Education, offers a Bachelor of Arts and a Bachelor of Science with a major in elementary education. Both degrees are awarded by the College of Liberal Arts and Sciences.

The elementary education major prepares students to teach kindergarten through sixth grade. Students complete course work in education foundations and methods and in one of the following areas of specialization: art, English language arts, history, mathematics, music, reading, science, social science, special education, or speech/communication theatre. Students must complete the College of Liberal Arts and Sciences General Education Program and must satisfy all other requirements for graduation with a bachelor's degree.

Students interested in pursuing a degree in elementary education must first be admitted to the College of Liberal Arts and Sciences; admission to the College of Education's elementary education program is not guaranteed. In order to be considered for admission to the elementary education program, undergraduates must complete a minimum of 33 s.h. of course work with a cumulative g.p.a. of at least 2.70. All students must submit Praxis I test scores with their application to the Teacher Education Program (TEP). Students should visit with an advisor or speak with Teacher Education Program staff about complete admission requirements.

For information about the elementary education curriculum, student teaching, and teacher licensure and certification, see "Teacher Education and Licensure/Certification" in the Teaching and Learning (College of Education) section of the Catalog.
The Department of English offers courses in literature, cultural studies, language, and writing. In these courses, students read poetry, fiction, essays, criticism, and theory to acquire methods for understanding literature and culture. In addition to providing these essential elements of a liberal arts and sciences education, the department’s courses can augment students’ specialized interests in other fields. The department also participates in the interdisciplinary Departments of American Studies, Cinema and Comparative Literature, and Women's Studies, the African American Studies Program, the American Indian and Native Studies Program, the Center for the Book, and the Project on Rhetorics of Inquiry (POROI).

The department has a historic commitment to teaching creative and nonfiction writing. Its graduate programs in writing have earned long-standing renown, and in fall 2008, it added a new creative writing track to the English undergraduate major. Admission to the track is selective.

Although most students in the Ph.D. program are preparing for careers as teachers and scholars, and many in the M.F.A. nonfiction writing program and the Iowa Writers’ Workshop are preparing for lives as storytellers, essayists, and poets, the B.A. and M.A. programs provide valuable training for careers in a variety of fields. Students who have earned English degrees from The University of Iowa write for advertising firms, newspapers, and book publishers; teach in primary and secondary schools; practice law and medicine; work in business and industry; and participate in state or federal government. As far as possible, a student's course of study is arranged to meet his or her individual needs and objectives.

Undergraduate Programs

The Department of English offers a Bachelor of Arts and a minor in English.

The department offers courses in literature, film, critical theory, cultural studies, language, and writing. In these courses, students study poetry, fiction, essays, criticism, film, and theory to acquire methods for understanding the history and significance of texts in the cultures from which they emerge.

The program also challenges students to strive for excellence as writers. It offers several classes in creative writing as well as in nonfiction writing; see "Writing for Undergraduates" later in this Catalog section. It also offers a creative writing track in the undergraduate major (admission to the track is selective); see "Bachelor of Arts" below.

Students who plan to apply to the College of Education for a degree in secondary education (English) should consult with an advisor in that program as early as possible. The education degree demands that students choose particular courses in the English major in order to meet state requirements. See "B.A. with Teacher Licensure" later in this section.

Students interested in an English major should consult advisors in the English undergraduate advising office. Visit the Department of English web site for details about the program, faculty, courses, and upcoming events.

Bachelor of Arts

The Bachelor of Arts in English requires a minimum of 120 s.h., including at least 33 s.h. (11 courses) of work for the major. Students may apply to enter the creative writing track in the English major; admission is selective (see "Creative Writing Track" below).

Students must earn at least 18 s.h. of credit for the major at The University of Iowa. Transfer students may count a maximum of 15 s.h. of approved transfer credit toward the major. Students also must complete the College of Liberal
Arts and Sciences General Education Program.

The following English courses may not be counted toward the 33 s.h. required for the English major: all 08G and 08A courses, 08C:001 Creative Writing Studio Workshop, and 08N:020 Introduction to Creative Nonfiction.

All English majors must complete 008:005 Introduction to the English Major: Theory and Practice; students are encouraged to enroll in the course as soon as they declare the English major.

Other course work for the major is divided into six areas and three historical periods. Students must complete a total of eight area courses (see "Areas" below) and six historical period courses (see "Historical Periods" below). Since most courses satisfy both an area and a historical period requirement, most students complete the historical period requirements as they complete the area requirements and are able to choose additional elective course work to complete the major.

The following course lists are organized by area and historical period. The course description for each course states that course's area and historical period designation (see "Courses" in this Catalog section or visit the University's ISIS web site). Information and course lists are also available on the Department of English web site and from advisors.

Undergraduate courses listed under the headings "Special Topics," "Linguistics and Language," and "Translation Studies" (see "Courses" in this Catalog section) do not fulfill area or period requirements for the English major, but they may be used to earn credit for the major.

Areas

Students must complete at least one course (3 s.h.) from each of the following six areas. Each student also must choose one of the six areas as a concentration area and take an additional two courses in that area, for a total of three courses (9 s.h.) in one area, and eight area courses in all.

Literary Theory and Interdisciplinary Studies

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>008:001</td>
<td>Modern Fiction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:002</td>
<td>Postmodern Fiction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:011</td>
<td>Films and Screenplays</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:030</td>
<td>Introduction to Cultural Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:032</td>
<td>Introduction to the English Language</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:033</td>
<td>Introduction to Criticism and Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:034</td>
<td>Introduction to the Novel</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:035</td>
<td>Introduction to Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:036</td>
<td>Introduction to the Short Story</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:037</td>
<td>Introduction to Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:038</td>
<td>Introduction to the Essay</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:050</td>
<td>Sex and Popular Culture in the Postwar U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:052</td>
<td>Literature, Culture, and Women</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>008:053</td>
<td>Lyric Structures</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:081</td>
<td>Film and Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:128</td>
<td>London Performance Study</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:129</td>
<td>Topics in Criticism and Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:130</td>
<td>Literature and the Book</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:134</td>
<td>Introduction to Book Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:136</td>
<td>Topics in Popular Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:160</td>
<td>African American Literary/Rhetorical Criticism I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:166</td>
<td>African American Literary/Rhetorical Criticism II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:168</td>
<td>Topics in Poetry and Poetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:169</td>
<td>Changing Concepts of Women in Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:170</td>
<td>Literary Genres and Modes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:171</td>
<td>Digital Media and Poetics</td>
<td>3 s.h.</td>
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<tr>
<td>008:172</td>
<td>Narrative and the Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:173</td>
<td>Topics in Digital Media</td>
<td>3 s.h.</td>
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<tr>
<td>008:175</td>
<td>Topics in Film and Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:176</td>
<td>Literature and Philosophic Thought</td>
<td>3 s.h.</td>
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<tr>
<td>008:177</td>
<td>Literature and Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:179</td>
<td>Literature and Society</td>
<td>3 s.h.</td>
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<tr>
<td>008:182</td>
<td>Science Fiction</td>
<td>3 s.h.</td>
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</table>
008:187 Handprinted Book: Design and Production 3 s.h.
008:188 Prose by Women Writers 3 s.h.
008:189 Digital Cultures and Literacies 3 s.h.
008:190 Topics in Book History 3 s.h.
008:192 Seminar in Interdisciplinary Studies 3-4 s.h.
08P:182 Language and Learning 2-3 s.h.
08P:198 Reading and Teaching Adolescent Literature 3 s.h.

Medieval and Early Modern Literature and Culture

008:008 Classical and Biblical Literature 3 s.h.
008:060 Selected Works of the Middle Ages 3 s.h.
008:061 Selected Works of the 16th and 17th Centuries 3 s.h.
008:076 Selected Early Authors 3 s.h.
008:100 Literature and Culture of Seventeenth-Century England 3 s.h.
008:101 Literature and Culture of the Middle Ages 3 s.h.
008:102 Literature and the Culture of the Renaissance 3 s.h.
008:111 Literature and Culture of the Restoration 3 s.h.
008:122 16th- and 17th-Century Poetry 3 s.h.
008:140 Elementary Old English 3 s.h.
008:141 Old English Beowulf 3 s.h.
008:142 Medieval Celtic Literature 3 s.h.
008:143 Medieval Norse Literature 3 s.h.
008:144 Medieval Drama 3 s.h.
008:145 English Renaissance Drama 3 s.h.
008:146 Chaucer 3 s.h.
008:147 Shakespeare 3 s.h.
008:148 Milton 3 s.h.
008:149 Spenser 3 s.h.
008:150 Topics in Medieval and Renaissance Literature 3 s.h.

Modern British Literature and Culture

008:062 Eighteenth-Century British Literature 3 s.h.
008:063 British Romanticism 3 s.h.
008:064 Victorian Literature 3 s.h.
008:065 Twentieth-Century British Literature 3 s.h.
008:066 Twenty-first-Century British Literature 3 s.h.
008:078 Selected British Authors Before 1900 3 s.h.
008:079 Selected British Authors After 1900 3 s.h.
008:090 Topics in Modern British Literature Before 1900 3 s.h.
008:091 Topics in Modern British Literature After 1900 3 s.h.
008:103 Literature and Culture of Eighteenth-Century Britain 3 s.h.
008:104 Literature and Culture of Nineteenth-Century Britain 3 s.h.
008:107 Literature and Culture of Nineteenth-Century Scotland 3 s.h.
008:110 Literature and Culture of 20th- and 21st-Century Britain 3 s.h.
008:112 Literature and Culture of the Romantic Period 3 s.h.
008:121 British Poetry 3 s.h.
008:131 European Literature of the Nineteenth Century 3 s.h.
008:178 Modern British Drama 3 s.h.

American Literature and Culture

008:055 American Poetry 3 s.h.
008:056 American Literary Classics 3 s.h.
008:057 American Novel Before 1900 3 s.h.
008:058 American Novel After 1900 3 s.h.
008:059 American Short Story 3 s.h.
008:069 Selected African American Authors 3 s.h.
008:082 Latina/o Studies 3 s.h.
008:083 Topics in African American Literature 3 s.h.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>008:086</td>
<td>Topics in Asian American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:087</td>
<td>Selected American Authors Before 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:088</td>
<td>Selected American Authors After 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:105</td>
<td>Literature and Culture of Nineteenth-Century America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:106</td>
<td>Literature and the Culture of Twentieth-Century America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:108</td>
<td>Literature and Culture of America Before 1800</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:115</td>
<td>Literatures of the American Peoples</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:116</td>
<td>African American Literature Before 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:117</td>
<td>African American Literature Since 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:118</td>
<td>Jewish American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:123</td>
<td>American Literature and History</td>
<td>3 s.h.</td>
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<tr>
<td>008:135</td>
<td>Topics in American Literature Before 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:137</td>
<td>African American Autobiography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:139</td>
<td>Topics in American Literature After 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:153</td>
<td>Native American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:154</td>
<td>American Regional Literatures</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:156</td>
<td>Midwest African American Literature and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:180</td>
<td>American Drama Before 1900</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:185</td>
<td>Native American Autobiography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:186</td>
<td>African American Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:196</td>
<td>American Novel Since 1945</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:197</td>
<td>American Drama Since 1900</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Transnational Literature and Postcolonial Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>008:031</td>
<td>Introduction to Postcolonial Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:075</td>
<td>Selected Transnational Authors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:084</td>
<td>Topics in Culture and Identity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:109</td>
<td>Literature and Culture of the Twentieth Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:113</td>
<td>Literature and Culture of the Americas</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:114</td>
<td>Caribbean Literature and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:119</td>
<td>African Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:127</td>
<td>Topics in Asian Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:132</td>
<td>Literature of the Indian Subcontinent</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:133</td>
<td>Inter-American Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:138</td>
<td>Topics in Postcolonial Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:157</td>
<td>Topics in African Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:161</td>
<td>Transnational and Postcolonial Writing by Women</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:163</td>
<td>Identity and Social Issues</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:164</td>
<td>Topics in Transnational Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:165</td>
<td>Diaspora and Transnational Migrations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:167</td>
<td>Literature and Culture of Empire</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:183</td>
<td>Modern Drama</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:191</td>
<td>International Literature Today</td>
<td>1, 3 s.h.</td>
</tr>
<tr>
<td>008:193</td>
<td>Transcultural Modernism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:195</td>
<td>Modernist Women Writers</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Nonfiction and Creative Writing**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>08C:023</td>
<td>Creative Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:097</td>
<td>Fiction Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:098</td>
<td>Poetry Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:107</td>
<td>Creative Writing for the Health Professions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:108</td>
<td>Creative Writing for New Media</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:110</td>
<td>Creative Writing for the Ecologically Aware: Stories in the Land</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:163</td>
<td>Undergraduate Writers’ Workshop: Fiction</td>
<td>arr.</td>
</tr>
<tr>
<td>08C:166</td>
<td>Undergraduate Writers’ Workshop: Poetry</td>
<td>arr.</td>
</tr>
<tr>
<td>08C:167</td>
<td>Undergraduate Writers' Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08C:195</td>
<td>Undergraduate Project in Creative Writing</td>
<td>arr.</td>
</tr>
<tr>
<td>08N:050</td>
<td>Word Power: Building English Vocabulary</td>
<td>3 s.h.</td>
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</table>
### Historical Periods

Students must take at least two courses from each of the following three historical periods.

**Early Literatures Through the 17th Century**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>008:008</td>
<td>Classical and Biblical Literature</td>
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<td>008:060</td>
<td>Selected Works of the Middle Ages</td>
<td>3 s.h.</td>
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<td>008:061</td>
<td>Selected Works of the 16th and 17th Centuries</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:076</td>
<td>Selected Early Authors</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:100</td>
<td>Literature and Culture of Seventeenth-Century England</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:101</td>
<td>Literature and Culture of the Middle Ages</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:102</td>
<td>Literature and the Culture of the Renaissance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:111</td>
<td>Literature and Culture of the Restoration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:122</td>
<td>16th- and 17th-Century Poetry</td>
<td>3 s.h.</td>
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<tr>
<td>008:140</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
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<td>008:141</td>
<td>Old English Beowulf</td>
<td>3 s.h.</td>
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<tr>
<td>008:142</td>
<td>Medieval Celtic Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:143</td>
<td>Medieval Norse Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:144</td>
<td>Medieval Drama</td>
<td>3 s.h.</td>
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<tr>
<td>008:145</td>
<td>English Renaissance Drama</td>
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<tr>
<td>008:146</td>
<td>Chaucer</td>
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<td>008:147</td>
<td>Shakespeare</td>
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<td>008:148</td>
<td>Milton</td>
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<td>008:149</td>
<td>Spenser</td>
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<tr>
<td>008:150</td>
<td>Topics in Medieval and Renaissance Literature</td>
<td>3 s.h.</td>
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</tbody>
</table>

**Literature of the 18th and/or 19th Century**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>008:057</td>
<td>American Novel Before 1900</td>
<td>3 s.h.</td>
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<tr>
<td>008:062</td>
<td>Eighteenth-Century British Literature</td>
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<tr>
<td>008:063</td>
<td>British Romanticism</td>
<td>3 s.h.</td>
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</table>
008:064 Victorian Literature 3 s.h.
008:078 Selected British Authors Before 1900 3 s.h.
008:087 Selected American Authors Before 1900 3 s.h.
008:090 Topics in Modern British Literature Before 1900 3 s.h.
008:103 Literature and Culture of Eighteenth-Century Britain 3 s.h.
008:104 Literature and Culture of Nineteenth-Century Britain 3 s.h.
008:105 Literature and Culture of Nineteenth-Century America 3 s.h.
008:107 Literature and Culture of Nineteenth-Century Scotland 3 s.h.
008:108 Literature and Culture of America Before 1800 3 s.h.
008:112 Literature and Culture of the Romantic Period 3 s.h.
008:116 African American Literature Before 1900 3 s.h.
008:131 European Literature of the Nineteenth Century 3 s.h.
008:135 Topics in American Literature Before 1900 3 s.h.
008:180 American Drama Before 1900 3 s.h.

Literature of the 20th and/or 21st Century

008:001 Modern Fiction 3 s.h.
008:002 Postmodern Fiction 3 s.h.
008:011 Films and Screenplays 3 s.h.
008:030 Introduction to Cultural Studies 3 s.h.
008:031 Introduction to Postcolonial Studies 3 s.h.
008:032 Introduction to the English Language 3 s.h.
008:033 Introduction to Criticism and Theory 3 s.h.
008:036 Introduction to the Short Story 3 s.h.
008:037 Introduction to Drama 3 s.h.
008:038 Introduction to the Essay 3 s.h.
008:050 Sex and Popular Culture in the Postwar U.S. 3 s.h.
008:053 Lyric Structures 3 s.h.
008:058 American Novel After 1900 3 s.h.
008:065 Twentieth-Century British Literature 3 s.h.
008:066 Twenty-first-Century British Literature 3 s.h.
008:069 Selected African American Authors 3 s.h.
008:075 Selected Transnational Authors 3 s.h.
008:079 Selected British Authors After 1900 3 s.h.
008:081 Film and Literature 3 s.h.
008:082 Latina/o Studies 3 s.h.
008:083 Topics in African American Literature 3 s.h.
008:086 Topics in Asian American Literature 3 s.h.
008:088 Selected American Authors After 1900 3 s.h.
008:091 Topics in Modern British Literature After 1900 3 s.h.
008:106 Literature and the Culture of Twentieth-Century America 3 s.h.
008:109 Literature and Culture of the Twentieth Century 3 s.h.
008:110 Literature and Culture of 20th- and 21st-Century Britain 3 s.h.
008:113 Literature and Culture of the Americas 3 s.h.
008:114 Caribbean Literature and Culture 3 s.h.
008:115 Literatures of the American Peoples 3 s.h.
008:117 African American Literature Since 1900 3 s.h.
008:118 Jewish American Literature 3 s.h.
008:119 African Literature 3 s.h.
008:127 Topics in Asian Cinema 3 s.h.
008:128 London Performance Study 3 s.h.
008:129 Topics in Criticism and Theory 3 s.h.
008:130 Literature and the Book 3 s.h.
008:132 Literature of the Indian Subcontinent 3 s.h.
008:133 Inter-American Studies 3 s.h.
008:134 Introduction to Book Studies 3 s.h.
008:136 Topics in Popular Culture 3 s.h.
008:137 African American Autobiography 3 s.h.
008:138 Topics in Postcolonial Studies 3 s.h.
008:139 Topics in American Literature After 1900 3 s.h.
008:153 Native American Literature 3 s.h.
008:157 Topics in African Cinema 3 s.h.
008:160 African American Literary/Rhetorical Criticism I 3 s.h.
008:161 Transnational and Postcolonial Writing by Women 3 s.h.
008:162 Midwest African American Literature and Culture 3 s.h.
008:163 Identity and Social Issues 3 s.h.
008:164 Topics in Transnational Literature 3 s.h.
008:165 Diaspora and Transnational Migrations 3 s.h.
008:166 African American Literary/Rhetorical Criticism II 3 s.h.
008:169 Changing Concepts of Women in Literature 3 s.h.
008:170 Literary Genres and Modes 3 s.h.
008:171 Digital Media and Poetics 3 s.h.
008:172 Narrative and the Cinema 3 s.h.
008:173 Topics in Digital Media 3 s.h.
008:175 Topics in Film and Literature 3 s.h.
008:176 Literature and Philosophic Thought 3 s.h.
008:179 Literature and Society 3 s.h.
008:182 Science Fiction 3 s.h.
008:183 Modern Drama 3 s.h.
008:185 Native American Autobiography 3 s.h.
008:187 Handprinted Book: Design and Production 3 s.h.
008:189 Digital Cultures and Literacies 3 s.h.
008:191 International Literature Today 1, 3 s.h.
008:192 Seminar in Interdisciplinary Studies 3-4 s.h.
008:193 Transcultural Modernism 3 s.h.
008:195 Modernist Women Writers 3 s.h.
008:196 American Novel Since 1945 3 s.h.
008:197 American Drama Since 1900 3 s.h.
08C:023 Creative Writing 3 s.h.
08C:097 Fiction Writing 3 s.h.
08C:098 Poetry Writing 3 s.h.
08C:107 Creative Writing for the Health Professions 3 s.h.
08C:108 Creative Writing for New Media 3 s.h.
08C:110 Creative Writing for the Ecologically Aware: Stories in the Land 3 s.h.
08C:163 Undergraduate Writers' Workshop: Fiction arr.
08C:166 Undergraduate Writers' Workshop: Poetry arr.
08C:167 Undergraduate Writers' Seminar 3 s.h.
08C:195 Undergraduate Project in Creative Writing arr.
08N:050 Word Power: Building English Vocabulary 3 s.h.
08N:080 Nonfiction Writing 3 s.h.
08N:090 Intermediate Nonfiction Writing 3 s.h.
08N:102 Prose Style 3 s.h.
08N:104 Personal Writing 3 s.h.
08N:113 Writing for Business and Industry 3 s.h.
08N:119 Writing for Interdisciplinary Audiences 3 s.h.
08N:120 Advanced Nonfiction Writing 3 s.h.
08N:125 Freelance Reporting and Writing 4 s.h.
08N:130 Special Readings in Nonfiction 3 s.h.
08N:133 Advanced Writing for Business 3 s.h.
08N:140 Editing a Literary Magazine 3 s.h.
08N:141 Approaches to Teaching Writing 3 s.h.
08N:145 Multimedia Writing 3 s.h.
08N:146 Film and Writing 3 s.h.
08N:147 Graphic Writing 3 s.h.
08N:148 Radio and Writing 3 s.h.
08N:150 Undergraduate Essay Workshop arr.
08N:183 Invention 3 s.h.
08N:192 Dublin Writing Workshop 3 s.h.
08N:199 Undergraduate Project in Nonfiction Writing  
8WS:120 Writer's House Seminar  
8WS:121 Writers' Seminar: Fiction  
8WS:122 Writers' Seminar: Poetry  
8WS:123 Writers' Seminar: Nonfiction  
8WS:124 Writers' Seminar: Literary Translation  
8WS:125 Writers' Seminar: Playwriting  
8WS:170 Creative Writing Track: Advanced Topics

Historical Period Determined by Course Content

The historical period of each of the following courses is designated as either 18th- and/or 19th-century literature, or as 20th- and/or 21st-century literature.

008:035 Introduction to Poetry  
008:052 Literature, Culture, and Women  
008:055 American Poetry  
008:056 American Literary Classics  
008:059 American Short Story  
008:084 Topics in Culture and Identity  
008:121 British Poetry  
008:123 American Literature and History  
008:154 American Regional Literatures  
008:167 Literature and Culture of Empire  
008:168 Topics in Poetry and Poetics  
008:177 Literature and Art  
008:178 Modern British Drama  
008:186 African American Drama  
008:188 Prose by Women Writers

The historical period of each of the following courses is designated as early literatures through the 17th century, or as 18th- and/or 19th-century literature, or as 20th- and/or 21st-century literature.

008:098 Honors Proseminar  
008:190 Topics in Book History

COURSES APPROVED FOR GENERAL EDUCATION

Courses numbered 08G cannot be counted toward the 33 s.h. required for the English major, so students majoring in English should not use 08G courses to complete the College of Liberal Arts and Sciences General Education Program. Although 08G:001 The Interpretation of Literature is a part of the General Education Program, English majors should substitute a course approved for General Education in the humanities area for 08G:001 The Interpretation of Literature.

Creative Writing Track

Students majoring in English may be eligible to enter the creative writing track. The track places the same emphasis on training creative and intelligent readers as does the English major.

The creative writing track requires 13 s.h., as described under "Creative Writing Track Requirements" below. In addition, creative writing track students must fulfill all requirements for the English major as stated under "Bachelor of Arts" above, including 008:005 Introduction to the English Major: Theory and Practice and the 6 s.h. of University of Iowa introductory-level writing courses that are required for admission to the track. They also must complete the College of Liberal Arts and Sciences General Education Program.

Selective Admission

Admission to the creative writing track is selective; students must apply and be admitted to the track. To apply, students should have junior or senior standing. They must meet the following requirements:

- a cumulative g.p.a. of at least 3.33 in English (based on all English courses taken, including creative writing courses); and

- completion of at least 9 s.h. in University of Iowa English courses, excluding those with prefixes 08N and 08C.

They also must have completed 6 s.h. in University of Iowa introductory-level writing courses chosen from the
following list.

08C:023 Creative Writing 3 s.h.
08C:097 Fiction Writing 3 s.h.
08C:098 Poetry Writing 3 s.h.
08C:167 Undergraduate Writers' Seminar 3 s.h.
08N:080 Nonfiction Writing 3 s.h.
08N:090 Intermediate Nonfiction Writing 3 s.h.
048:078 Undergraduate Translation Seminar (section 1) 3 s.h.
048:079 Undergraduate Translation Workshop 3 s.h.
049:062 Playwriting I 3 s.h.
049:063 Playwriting II 3 s.h.

Exceptions may be made for students who have not taken an introductory course but who have taken 08C:166 Undergraduate Writers' Workshop: Poetry or 08C:163 Undergraduate Writers' Workshop: Fiction.

Students may apply to the creative writing track during preregistration each semester. For information and application forms, visit the Department of English web site.

Registration in creative writing track courses requires admission to the track.

Creative Writing Track Requirements

The creative writing track requires 13 s.h., including 10 s.h. of writers' seminars and an additional 3 s.h. writing course.

Writers' seminars are the hub of the creative writing track. They give students the opportunity to engage creatively in the relationship between reading and writing; to explore questions of craft, literary traditions, and aesthetics; and to learn how to read literature with a writer's eye.

During a single semester, creative writing track students enroll in 8WS:120 (2 s.h.) and in a writers' seminar (3 s.h.) of their choice, based on one of five genres: fiction, poetry, nonfiction, literary translation, and playwriting. In the writer's seminar, students do intensive work in their genre of choice, with other students who have chosen the same genre. At the same time, students in all genres meet once weekly in Writers' House Seminar, which draws on Iowa's creative writing tradition to provide a common experience that includes readings, talks, performances, master classes and class discussions and prepares students for participation at events led by visiting writers. The curriculum for the Writers' House Seminar includes works by or about the visiting writers, literature that helps contextualize the readings, and exercises designed to heighten students' involvements at events.

Students take the two-course combination of Writers' House Seminar and the genre-specific writers' seminar twice, once in each of two different semesters, for a total of 10 s.h. (5 s.h. each semester). They also must complete an additional 3 s.h. writing course; see "Additional Writing Course" below.

Required courses for the creative writing track are as follows.

Writers' Seminars

Students take 8WS:120 Writer's House Seminar twice, each time during the same semester in which they take their choice of the genre-based writers' seminars listed below. They may take the same genre-based seminar twice, or they may choose two different genre-based seminars (in two different semesters). In meeting the requirement of taking the two-course combination twice (8WS:120 and the genre-based seminar), students may register for the combination in two consecutive semesters, or they may skip a semester.

8WS:120 Writer's House Seminar (taken twice) 2 s.h.

Two of these genre-based seminars, each taken concurrently with 8WS:120:

8WS:121 Writers' Seminar: Fiction 3 s.h.
8WS:122 Writers' Seminar: Poetry 3 s.h.
8WS:123 Writers' Seminar: Nonfiction 3 s.h.
8WS:124 Writers' Seminar: Literary Translation 3 s.h.
8WS:125 Writers' Seminar: Playwriting 3 s.h.

Additional Writing Course

One of these:

008:198 Undergraduate Honors Project 1-2, 3, 4 s.h.
08C:163 Undergraduate Writers' Workshop: Fiction 3 s.h.
08C:166 Undergraduate Writers’ Workshop: Poetry 3 s.h.
08N:120 Advanced Nonfiction Writing 3 s.h.
08N:130 Special Readings in Nonfiction 3 s.h.
08N:150 Undergraduate Essay Workshop 3 s.h.
8WS:170 Creative Writing Track: Advanced Topics 3 s.h.
049:165 Advanced Playwriting 3 s.h.
049:169 Undergraduate Playwriting Workshop 3 s.h.

In order to take 008:198 Undergraduate Honors Project (an honors thesis in creative writing), students must be members of the University of Iowa Honors Program, must have completed all of the writers’ seminars required for the creative writing track, must be on course to complete all requirements for the English major, and must have departmental approval.

B.A. with Teacher Licensure

Students planning to teach English in secondary schools must complete the requirements for the major in English and gain admission to the Teacher Education Program. Contact the College of Education Office of Teacher Education and Student Services for application forms and information.

By the end of the program, students must have completed the following courses.

ENGLISH (PART OF THE ENGLISH MAJOR)

A Shakespeare course
Three American literature courses
A British literature course
08N:141/07S:155 Approaches to Teaching Writing (area: nonfiction and creative writing) 3 s.h.
08P:182/07S:182 Language and Learning (area: literary theory and interdisciplinary studies) 2-3 s.h.
08P:198/07S:193 Reading and Teaching Adolescent Literature (area: literary theory and interdisciplinary studies) 3 s.h.
One nonfiction or creative writing course in addition to 08N:141

A Shakespeare course
Three American literature courses
A British literature course
08N:141/07S:155 Approaches to Teaching Writing (area: nonfiction and creative writing) 3 s.h.
08P:182/07S:182 Language and Learning (area: literary theory and interdisciplinary studies) 2-3 s.h.
08P:198/07S:193 Reading and Teaching Adolescent Literature (area: literary theory and interdisciplinary studies) 3 s.h.
One nonfiction or creative writing course in addition to 08N:141

EDUCATION

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom 2 s.h.
07P:075 Educational Psychology and Measurement 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:114 Introduction and Practicum: Secondary English 3 s.h.
07S:115 Methods: Secondary English 3 s.h.
07S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
07S:190 Orientation to Secondary Education 0-1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:194 Methods: Secondary Reading 2-3 s.h.
07U:100 Foundations of Special Education 3 s.h.
One college-level mathematics or statistics course

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom 2 s.h.
07P:075 Educational Psychology and Measurement 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:114 Introduction and Practicum: Secondary English 3 s.h.
07S:115 Methods: Secondary English 3 s.h.
07S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
07S:190 Orientation to Secondary Education 0-1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:194 Methods: Secondary Reading 2-3 s.h.
07U:100 Foundations of Special Education 3 s.h.

One college-level mathematics or statistics course

Admission

Applicants to the Teacher Education Program in English must have completed a minimum of 40 s.h., including at least 12 s.h. in English before they can be admitted (the following courses do not count toward the 12 s.h.: all 08G courses, 08P:141 Approaches to Teaching Writing 08P:182 Language and Learning, and 08P:198 Reading and Teaching Adolescent Literature). Applicants must have a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 as well as an English major g.p.a. of at least 3.0. Applicants must submit an application to the College of Education, including PRAXIS I scores, an Iowa criminal history check, letters of recommendation, and proof of a 10-hour preadmission volunteer field experience.

Minor Licensure in English

Students who seek licensure for secondary teaching in fields other than English may seek minor licensure in English. First-year courses in rhetoric, speech, or writing do not count toward this requirement.

The English minor licensure program includes the following course work.

An American literature course
A British literature course
A course in creative or nonfiction writing
An additional English course
07S:115 Methods: Secondary English 3 s.h.
07S:194 Methods: Secondary Reading 2-3 s.h.
08N:141/07S:155 Approaches to Teaching Writing 3 s.h.
08P:182/07S:182 Language and Learning 2-3 s.h.
08P:198/07S:193 Reading and Teaching Adolescent Literature 3 s.h.

An American literature course
A British literature course
A course in creative or nonfiction writing
An additional English course
07S:115 Methods: Secondary English 3 s.h.
07S:194 Methods: Secondary Reading 2-3 s.h.
08N:141/07S:155 Approaches to Teaching Writing 3 s.h.
08P:182/07S:182 Language and Learning 2-3 s.h.
08P:198/07S:193 Reading and Teaching Adolescent Literature 3 s.h.

While this program meets minimum requirements for licensure, the department recommends that students who want to teach English have considerably more training in the field.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six courses in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: at least eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The English major with honors gives talented students the opportunity to enhance their course of study through honors proseminars and thesis writing. Each year the department offers six honors proseminars covering a wide range of subject areas and historical periods. Honors proseminars are limited to 18 students, carry 4 s.h. credit, and meet three hours each week. These courses require substantial reading and research and culminate in a 15-20 page essay. Students register for 008:098 Honors Proseminar.

To register for a proseminar, students must have a University of Iowa g.p.a. of at least 3.30 and must have completed three English courses (not including introductory courses in nonfiction or creative writing) with a g.p.a. of at least 3.30 in English. The department also recommends that students complete 008:005 Introduction to the English Major: Theory and Practice before taking an honors proseminar. To enroll in a proseminar, students must obtain a special permission code number from the honors director.

All students interested in taking honors course work are encouraged to join the English Honors Program as soon as they qualify. Students may join online at http://www.uiowa.edu/~enghonor or at the English Honors Program office.

Students who wish to graduate with honors in English must take two honors proseminars, complete a two-semester thesis project, and maintain a University of Iowa g.p.a. of at least 3.30 and a g.p.a. of at least 3.50 in English. In some cases, other academic course work can be substituted for the second proseminar. Students who wish to pursue this option should contact the honors director.

The two-semester thesis project includes 008:120 Honors Thesis Workshop (fall) and 008:198 Undergraduate Honors Project (independent study) for a total of 6 s.h. To enroll in 008:120 Honors Thesis Workshop, students must have completed one honors proseminar with a grade of A- or better and must have a University of Iowa g.p.a. of at least 3.30 and a g.p.a. of at least 3.50 in English.

The English Honors Program has established careful guidelines for each of the six types of honors theses accepted by the department: literary and cultural studies; nonfiction writing; electronic writing and multimedia production; English education; creative writing; and the interdisciplinary thesis for double honors, which allows a student to earn honors in two departments with one longer project. Information on thesis guidelines is available on the English Honors Program web site and in the handout A Guide to the English Honors Program, available in the Department of English office.

Contact the University of Iowa Honors Program for more information about honors study at Iowa.

Minor

The minor in English requires a minimum of 15 s.h. in English courses, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 3 s.h. of approved transfer credit toward the minor. Before taking courses for the minor, students must complete the General Education Program requirement 08G:001 The Interpretation of Literature.

The minor must include at least 6 s.h. in literature (prefix 008); the remaining 9 s.h. may be selected from additional courses in literature, from most courses in writing (prefixes 08C and 08N), or from courses in linguistics (prefix 08L). The following courses do not count toward the minor: all 08A and 08G courses, 08C:001 Creative Writing Studio Workshop, and 08N:020 Introduction to Creative Nonfiction.

Students may declare the English minor on ISIS. In order for the minor to be recorded, students must indicate completion of the minor on their Application for Degree.

Students who would like help declaring the minor or in planning how to meet its requirements may stop by the advising office or schedule an appointment with an advisor by contacting the undergraduate English secretary.

Writing for Undergraduates

Many undergraduate students come to The University of Iowa because of the Iowa Writers' Workshop (see "Writing Programs" later in this section). The workshop is a graduate program, but any student may take the undergraduate courses taught there: 08C:023 Creative Writing, 08C:097 Fiction Writing, 08C:098 Poetry Writing, and 08C:001 Creative Writing Studio Workshop. However, 08C:001 Creative Writing Studio Workshop does not fulfill requirements for the English major or minor.

Admission to the undergraduate workshops in fiction and poetry (08C:163 Undergraduate Writers' Workshop: Fiction
and 08C:166 Undergraduate Writers' Workshop: Poetry) requires the instructor's consent. Students who wish to participate in these workshops must submit samples of their poetry or fiction to the Iowa Writers' Workshop office no earlier than a week before registration and no later than the last day of registration for that semester.

Students majoring in English may apply to the major's Creative Writing Track; see "Bachelor of Arts" earlier in this Catalog section.

Nonfiction writing is also a major area of interest for faculty and students in the department of English. Students may enroll for courses that stress practice in forms of nonfiction writing and for courses that focus on nonfiction literature. Students who wish to participate in 08N:150 Undergraduate Essay Workshop and other courses with special permission requirements should check with the instructor of the course before registering. Introduction to Creative Nonfiction (08N:020) does not fulfill requirements for the English major or minor.

Undergraduate majors may concentrate in nonfiction and creative writing with any combination of 08N or 08C courses (except 08C:001 Creative Writing Studio Workshop and 08N:020 Introduction to Creative Nonfiction).

**Graduate Programs**

The department offers an M.A., an M.F.A., and a Ph.D. in English. The M.A. introduces students to the professional study of literature, and the Ph.D. prepares them to serve as faculty members at colleges and universities.

The M.F.A. is offered in creative writing and in nonfiction writing. The M.F.A. in creative writing features advanced courses in writing fiction and poetry. Students in creative writing study at the Iowa Writers' Workshop, renowned as a pioneer in teaching writers since its founding in 1936. The M.F.A. in nonfiction writing is one of the few programs in the nation that offers a full range of graduate courses in the area.

Direct application to the Ph.D. program is generally encouraged for prospective M.A. students. But some consider the M.A. an appropriate step in their professional training. These students may have had an undergraduate major in a different field or may want more preparation for other reasons. Some may intend to complete their studies elsewhere. Students interested in careers in any area of book studies (professional writing, editing, web design, or publishing) may wish to pursue the M.A. as a terminal degree, as may teachers seeking to enhance their credentials or students pursuing intellectual growth unrelated to a specific career.

M.A. and Ph.D. students in English mix freely in graduate courses, share the same access to faculty, and meet the same standards of quality in their work.

**Exam for the Master of Arts in Teaching**

The department administers the English component of the exam for the Master of Arts in Teaching (M.A.T.) in coordination with the College of Education. M.A.T. students should contact the Department of Teaching and Learning or visit the College of Education web site for information.

**Master of Arts**

The Master of Arts in English requires a minimum of 30 s.h. of graduate credit. The program's focus is literary studies. The required 30 s.h. includes 24 s.h. earned in residence at The University of Iowa with a g.p.a. of at least 3.25. Students who wish to transfer to Iowa's Ph.D. program must complete two semesters or 15 s.h. of course work in literature (whichever comes first) before applying for admission to the doctoral program.

**COURSE WORK**

Each student must take the following courses at the 200 level or above. Applicable transfer courses must be approved by the director of graduate study in English.

One course in criticism and theory

Four courses from the following five areas:

British or American literature and culture before 1500
British or American literature and culture 1500-1660
British or American literature and culture 1660-1800
British or American literature and culture 1800-1900
British or American literature and culture of the 20th Century
Elective courses constitute half of the total credit for the degree and may be chosen from graduate courses both in and outside the English department. Students may wish to explore opportunities for interdisciplinary study, language study, experience in theory and practice of writing, or specialization in a field of literary scholarship.

Department of English graduate courses are repeatable with the written approval of the department's director of graduate studies.

Completion of the M.A. requires either a thesis or a portfolio. Students submit a written description of their choice to the director of the program before the semester in which they plan to graduate.

**M.A. THESIS**

Students who choose to write an M.A. thesis must submit a brief prospectus approved by a thesis director before they register for thesis credit and at least one semester before they submit the thesis. The thesis committee consists of the thesis director, the director of the M.A. program, and one other faculty member. The thesis is evaluated by the committee as either satisfactory or unsatisfactory.

A copy of the thesis must be presented to the Graduate College for approval. For detailed information about Graduate College deadlines and policies, see the Manual of Rules and Regulations of the Graduate College.

**PORTFOLIO**

Near the end of their course work, students who do not choose the thesis option must submit a portfolio of work to the M.A. examination committee, which consists of the director of the M.A. program and two other English faculty members. All three read the full portfolio. To pass, the candidate must win a majority vote of the committee members.

Students take the first step toward preparing to submit a portfolio by meeting with the director of the M.A. program to discuss the portfolio. Soon after this meeting, and no less than three weeks before the exam date, the student presents to the director a draft of the portfolio's introductory statement. The director may suggest changes either before or after approving the statement. Once the director approves the statement, the student must provide the director with three copies of the full portfolio at least two weeks before the date of the examination.

The work in the portfolio should demonstrate the student's knowledge of literature as a broad historical and theoretical inquiry. Students submit approximately 50 pages (12,500 words) of their best work, along with an introductory statement of five to seven pages. The body of the portfolio should contain revised versions of papers originally produced for classes. The introductory statement should explain the contents of the portfolio, contextualize each paper, and give a brief overview of the writing. Students are expected to describe the research methods used in assembling their portfolios and the critical practices that ground their work.

**Master of Fine Arts (Nonfiction Writing)**

The Master of Fine Arts in nonfiction writing requires 48 s.h. of graduate credit; a thesis is required. The program is broadly devoted to literary nonfiction. It is designed primarily for persons who wish to become nonfiction writers, but it also may be appropriate for those who wish to teach, edit, or pursue other activities in the field of nonfiction. Normally, the program takes three years to complete.

The required 48 s.h. includes at least 30 s.h. earned in residence at The University of Iowa and 24 s.h. of work in program-designated courses. Electives may be chosen widely, from courses in the English department as well as any other University departments.

Department of English graduate courses are repeatable with the written approval of the department's director of graduate studies.

In addition to the course work, students are required to enroll for at least 4 s.h. and no more than 8 s.h. of thesis credit. The thesis may be a single extended piece of nonfiction, a collection of shorter nonfiction pieces, or a collection of essays. Whatever the project, the thesis is expected to be of publishable quality.

For more information, consult the director of the Nonfiction Writing Program.
Master of Fine Arts (Creative Writing)

The Master of Fine Arts in creative writing requires a minimum of 48 s.h. of graduate credit. The degree is offered through the Program in Creative Writing (Iowa Writers' Workshop), a two-year residency program that culminates in a creative thesis—a novel, a collection of stories, or a book of poetry.

Throughout the program, workshop students craft their manuscripts and engage in an exchange of ideas about writing and reading with each other and with the renowned teacher-authors who make up the workshop's faculty.

Admission to the program in competitive.

For details about the M.F.A. in creative writing and about the workshop, see Creative Writing (Iowa Writers' Workshop) in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy in English requires a minimum of 72 s.h. of graduate credit. The program is designed as preparation for the teaching, publishing, and administrative service required of college and university faculty members.

Concentrations are offered in areas such as literary history and critical theory, as well as interdisciplinary areas such as cultural studies and transnational studies.

Of the required 72 s.h., at least 30 s.h. must be earned in residence at The University of Iowa with a g.p.a. of at least 3.50.

Ph.D. requirements include the following.

Formal admission to candidacy by a vote of the Graduate Steering Committee, usually during the third semester of doctoral study

Course work in any four of the following historical periods, as expressed in texts of the English-speaking and -writing world (usually but not always British or American):

- Literature and culture before 1500
- Literature and culture 1500-1660
- Literature and culture 1660-1800
- Literature and culture 1800-1900
- Literature and culture of the 20th century

Three English department seminars taken at The University of Iowa

Fulfillment of the language requirement, usually by completion of an advanced undergraduate course (100-level or above) in a language other than English

A comprehensive examination that consists of the following: a portfolio of five scholarly questions based on a period of literary history (usually British or American); a review essay and annotated bibliography in a special area of interest; two course syllabi; an article to be submitted for publication; and an introduction to the portfolio that synthesizes its parts in preparation for a two-hour oral exam

A dissertation, beginning with a formal presentation of the prospectus to a faculty committee

A final examination in defense of the dissertation

All doctoral candidates are required to gain some teaching experience, preferably in the College of Liberal Arts and Sciences Department of Rhetoric and in General Education Program literature courses.

For application forms and a complete description of the Ph.D. program, contact the department's graduate program associate.

Admission
For information about admission requirements, see Admissions Guidelines for Graduate Students in English on the department's web site. Applications for admission must be postmarked by the following deadlines:

M.A. and Ph.D.: postmark deadline is January 7.
M.F.A. (creative writing): postmark deadline is January 3.
M.F.A. (nonfiction writing): postmark deadline is December 15.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Graduate scholarships, fellowships, and teaching and research assistantships are awarded on a competitive basis. The department strives to provide six years of support for all doctoral students who are in good standing, which requires a University of Iowa g.p.a. of at least 3.50 and full-time student standing.

Financial aid applications are considered only from students who have applied or been admitted to a degree program in the Graduate College. Applications and all necessary supporting material must be submitted by the end of January for the following academic year. Forms are available from the Department of English and the University's Office of Admissions.

Writing Programs

For the past 70 years, The University of Iowa has been a national leader in virtually all areas of teaching writing. Today it offers graduate degrees in both creative and nonfiction writing, gives undergraduate English majors the opportunity to pursue a track in creative writing or a concentration in nonfiction writing, and makes writing courses available to qualified undergraduate non-English majors.

The Program in Creative Writing is conducted at the Iowa Writers' Workshop. Founded in 1936, the workshop counts scores of distinguished poets and novelists among its alumni. Writers compete for admission to the program, where they work with the outstanding teacher-authors that make up the workshop's faculty.

The workshop also brings numerous prominent authors to campus each year for lectures and readings.

The University of Iowa M.F.A. program in nonfiction writing is one of the few programs in the nation that offers a full range of graduate course work in the area. It also gives undergraduates the opportunity to pursue a concentration in nonfiction writing.

For information about the graduate degrees and about undergraduate opportunities in creative writing and in nonfiction writing, see "Master of Fine Arts (Nonfiction Writing)," "Master of Fine Arts (Creative Writing)," and "Writing for Undergraduates" earlier in this section of the Catalog. To learn more about the creative and nonfiction writing programs, visit Iowa Writers' Workshop and Nonfiction Writing Program.

Facilities, Resources

The University of Iowa Libraries collection is strong in all areas of English and American literature. Partly because of the influence of the Iowa Writers' Workshop, University Libraries has particular strengths in 20th-century fiction and poetry, including manuscript collections of 20th-century authors.

Several periodicals are published under the department's aegis. The Iowa Review, Walt Whitman Quarterly Review, and Philological Quarterly offer opportunities for especially qualified graduate students to work as research assistants or editorial associates. The Iowa Journal of Cultural Studies, edited by English department graduate students, features creative and scholarly work by students in English and related areas.

The Department of English and the Iowa Writers' Workshop sponsor a rich and extensive series of readings and lectures by poets, fiction writers, and scholars, all open to students in the department.

The Association of Graduate Students in English sponsors social and intellectual events during the year and provides a forum for student opinion. All graduate students in the department are members.

English Courses

Individual descriptions for most English courses are not included because content and emphasis may vary considerably from one semester to the next. For detailed descriptions of each semester's courses, visit the University's ISIS web site.
Courses for Non-English Majors

08A:080 Nonfiction Writing for Non-English Majors 3 s.h.
08A:104 Personal Writing for Non-English Majors 3 s.h.
08A:106 Literature and Culture of 20th-Century America for Non-English Majors 3 s.h.
08A:113 Writing for Business and Industry for Non-English Majors 3 s.h.
08A:133 British Novel: Scott to Conrad for Non-English Majors 3 s.h.
08A:135 Forms of the Essay for Non-English Majors 3 s.h.
08A:142 Popular Literature for Non-English Majors 3 s.h.
08A:188 Prose by Women Writers for Non-English Majors 3 s.h.

General Education

Note: 08C:001 Creative Writing Studio Workshop and 08N:020 Introduction to Creative Nonfiction do not count toward the English major or minor.

08C:001 Creative Writing Studio Workshop 3 s.h.
Experience reading and writing fiction, poetry, and personal narrative in a workshop setting; study of published work and critical discussion from a writer's standpoint; critique of class members' work. GE: Fine Arts, Humanities.

08N:020 Introduction to Creative Nonfiction 3 s.h.
Creative nonfiction genres explored through readings, discussion, and writing exercises; introduction to the workshop environment; for English nonmajors. GE: Fine Arts.

Literature, General Education

All students who seek a degree from the College of Liberal Arts and Sciences, except English majors, must take 08G:001 The Interpretation of Literature as part of the General Education Program. English majors should substitute any course that is approved for General Education in the humanities, except those numbered 08G.

Course 08G:001 (or its equivalent by examination or transfer) is a prerequisite for courses 08G:002 Biblical and Classical Literature through 08G:015 Women and Literature. The pass/nonpass option is available only for students in the Colleges of Nursing and Engineering with consent of the student's advisor and the instructor. Students must successfully complete the rhetoric requirement before they take 08G courses.

08G:001 The Interpretation of Literature 3 s.h.
Ways of reading; focus on reader, text, contexts; poetry, short fiction, drama, novels. GE: Interpretation of Literature.

08G:002 Biblical and Classical Literature 3 s.h.
Literatures of ancient cultures—Jewish and Christian, Greek and Roman—that have deeply affected later civilizations. Prerequisite: 08G:001. GE: Humanities.

08G:003 Medieval and Renaissance Literature 3 s.h.
English and European poetry, prose, drama circa 400-1700 in dialogue with contemporary concerns. Prerequisite: 08G:001. GE: Humanities.

08G:004 Heroes and Villains 3 s.h.
Heroes, heroines, and villains as products of the imagination; literary representations of heroes, heroines, and villains in varied social and historical situations; how their representation shapes our understanding of heroism and of villainy. Prerequisite: 08G:001; closed to students who have taken 08G:012. GE: Humanities.
08G:005 Literatures of Native American Peoples
Genres of Native American literature, including oral literature; focus on written literature (fiction, essays, poetry, drama). Prerequisite: 08G:001. GE: Cultural Diversity, Humanities. Same as 149:005.

08G:006 Fictions
Selected masterpieces and recent developments in the art of storytelling in poetry and prose. Prerequisite: 08G:001. GE: Humanities.

08G:007 Poetry
Poetry from major periods of development as well as contemporary verse; emphasis on distinctive language, major formal patterns of poetry. Prerequisite: 08G:001. GE: Humanities.

08G:008 Drama
Plays from a wide range of periods; relationship of text to performance. Prerequisite: 08G:001. GE: Humanities.

08G:009 American Lives
Major works of American literature. Prerequisite: 08G:001. GE: Humanities.

08G:011 Literature and Sexualities
Works from various genres, time periods, cultures that reflect and construct a wide range of sexual identities. Prerequisite: 08G:001. GE: Cultural Diversity, Humanities.

08G:012 Comic and Tragic Literature
Interrelations of comic and tragic literature, including film and other popular media, and their connection with human experience; comic and tragic forms and their uses in different social and historical situations. Prerequisite: 08G:001; closed to students who have taken 08G:004. GE: Humanities.

08G:014 Literatures of the African Peoples
Works in English by authors of African descent from America, continental Africa, the Caribbean. Prerequisite: 08G:001. GE: Foreign Civilization & Culture, Humanities. Same as 129:008.

08G:015 Women and Literature
Works from various genres and time periods focusing on a wide range of women's experiences. Prerequisite: 08G:001. GE: Humanities.

Literature, Primarily for Undergraduates

English department courses are open to all undergraduates who have satisfied the rhetoric requirement. Undergraduates are encouraged to complete the required course 008:005 Introduction to the English Major: Theory and Practice as soon as they declare the English major. Students also are encouraged to take one or more introductory departmental courses (008:030 Introduction to Cultural Studies through 008:038 Introduction to the Essay) before attempting 100-level courses.

Courses 008:098 Honors Proseminar, 008:198 Undergraduate Honors Project, and 008:199 Special Project for Undergraduates may be repeated. Most courses with the 008 prefix may not be repeated; see course descriptions for exceptions. Some may be repeated if the subject matter is different from that of a course a student already has taken; students must have written consent from the department's undergraduate advising office.

008:001 Modern Fiction
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:002 Postmodern Fiction
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:005 Introduction to the English Major: Theory and Practice
History and practice of English as a discipline; four central aspects of literary study.
<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>008:008</td>
<td>Classical and Biblical Literature</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
</tr>
<tr>
<td>008:011</td>
<td>Films and Screenplays</td>
<td>3 s.h.</td>
<td>Films and their origins in original screenplays or adaptations; the screenplay as a distinct form of creative writing. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 048:011.</td>
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<tr>
<td>008:030</td>
<td>Introduction to Cultural Studies</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st Century Literature.</td>
</tr>
<tr>
<td>008:031</td>
<td>Introduction to Postcolonial Studies</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st Century Literature.</td>
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<tr>
<td>008:032</td>
<td>Introduction to the English Language</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st Century Literature.</td>
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<td>008:033</td>
<td>Introduction to Criticism and Theory</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<tr>
<td>008:034</td>
<td>Introduction to the Novel</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.</td>
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<tr>
<td>008:035</td>
<td>Introduction to Poetry</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.</td>
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<tr>
<td>008:036</td>
<td>Introduction to the Short Story</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:037</td>
<td>Introduction to Drama</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:038</td>
<td>Introduction to the Essay</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:050</td>
<td>Sex and Popular Culture in the Postwar U.S.</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. GE: Cultural Diversity. Same as 045:060, 131:061, 154:060.</td>
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<td>008:052</td>
<td>Literature, Culture, and Women</td>
<td>2-3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 131:052.</td>
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<td>008:053</td>
<td>Lyric Structures</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:055</td>
<td>American Poetry</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

**008:056 American Literary Classics** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

**008:057 American Novel Before 1900** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

**008:058 American Novel After 1900** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th and/or 21st-Century Literature.

**008:059 American Short Story** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

**008:060 Selected Works of the Middle Ages** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

**008:061 Selected Works of the 16th and 17th Centuries** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

**008:062 Eighteenth-Century British Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

**008:063 British Romanticism** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

**008:064 Victorian Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

**008:065 Twentieth-Century British Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

**008:066 Twenty-first-Century British Literature** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

**008:069 Selected African American Authors** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 129:069.

**008:075 Selected Transnational Authors** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

**008:076 Selected Early Authors** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

**008:078 Selected British Authors Before 1900** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

008:079 Selected British Authors After 1900  3 s.h.
English majors may apply the following course to the area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:081 Film and Literature  3 s.h.
Relationships among films, novels, plays, adaptations; shared and distinct formal elements of cinematic and literary texts, their cultural functions. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 048:081.

008:082 Latina/o Studies  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:083 Topics in African American Literature  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:084 Topics in Culture and Identity  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

008:086 Topics in Asian American Literature  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:087 Selected American Authors Before 1900  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

008:088 Selected American Authors After 1900  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:090 Topics in Modern British Literature Before 1900  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

008:091 Topics in Modern British Literature After 1900  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:100 Literature and Culture of Seventeenth-Century England  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

008:101 Literature and Culture of the Middle Ages  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 162:101.

008:102 Literature and the Culture of the Renaissance  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

008:103 Literature and Culture of Eighteenth-Century Britain  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.
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<th>Course Code</th>
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<td>008:104</td>
<td>Literature and Culture of Nineteenth-Century Britain</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.</td>
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<tr>
<td>008:105</td>
<td>Literature and Culture of Nineteenth-Century America</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.</td>
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<tr>
<td>008:106</td>
<td>Literature and the Culture of Twentieth-Century America</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:107</td>
<td>Literature and Culture of Nineteenth-Century Scotland</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.</td>
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<td>008:108</td>
<td>Literature and Culture of America Before 1800</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.</td>
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<td>008:109</td>
<td>Literature and Culture of the Twentieth Century</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:110</td>
<td>Literature and Culture of 20th- and 21st-Century Britain</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:111</td>
<td>Literature and Culture of the Restoration</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:112</td>
<td>Literature and Culture of the Romantic Period</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.</td>
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<td>008:113</td>
<td>Literature and Culture of the Americas</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:114</td>
<td>Caribbean Literature and Culture</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:115</td>
<td>Literatures of the American Peoples</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:116</td>
<td>African American Literature Before 1900</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature. Same as 129:116.</td>
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<td>008:117</td>
<td>African American Literature Since 1900</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 129:117.</td>
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<td>008:118</td>
<td>Jewish American Literature</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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</table>
008:119 African Literature 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 129:119.

008:121 British Poetry 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

008:122 16th- and 17th-Century Poetry 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.

008:123 American Literature and History 3 s.h.
Examination of fictional histories (novels about history), their relationship to historical interpretation. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 045:123.

008:127 Topics in Asian Cinema 3 s.h.
Issues or topics in East or South Asian cinemas. English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 039:145, 048:106.

008:128 London Performance Study 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 049:177.

008:129 Topics in Criticism and Theory 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:130 Literature and the Book 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 108:181.

008:131 European Literature of the Nineteenth Century 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature. Same as 048:109.

008:132 Literature of the Indian Subcontinent 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:133 Inter-American Studies 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:134 Introduction to Book Studies 3 s.h.
Theory and practice of book studies; meanings of word and image in the book format; comparative study of other media, applied study of the codex as physical artifact. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 108:185.

008:135 Topics in American Literature Before 1900 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

008:136 Topics in Popular Culture 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.
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<td>008:137</td>
<td>African American Autobiography</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 129:181.</td>
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<td>008:138</td>
<td>Topics in Postcolonial Studies</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:139</td>
<td>Topics in American Literature After 1900</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.</td>
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<td>008:140</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
<td>Reading knowledge of Old English; introduction to Anglo-Saxon literature and culture. English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 103:132.</td>
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<td>008:141</td>
<td>Old English Beowulf</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:142</td>
<td>Medieval Celtic Literature</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:143</td>
<td>Medieval Norse Literature</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<tr>
<td>008:144</td>
<td>Medieval Drama</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 049:181.</td>
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<td>008:145</td>
<td>English Renaissance Drama</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 049:184.</td>
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<td>008:146</td>
<td>Chaucer</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:147</td>
<td>Shakespeare</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 049:072.</td>
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<td>008:148</td>
<td>Milton</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:149</td>
<td>Spenser</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:150</td>
<td>Topics in Medieval and Renaissance Literature</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century.</td>
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<td>008:153</td>
<td>Native American Literature</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 149:113.</td>
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008:154 American Regional Literatures
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

008:157 Topics in African Cinema
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 129:158.

008:160 African American Literary/Rhetorical Criticism I
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 010:132, 129:130.

008:161 Transnational and Postcolonial Writing by Women
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 048:161.

008:162 Midwest African American Literature and Culture
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 129:162.

008:163 Identity and Social Issues
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:164 Topics in Transnational Literature
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:165 Diaspora and Transnational Migrations
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:166 African American Literary/Rhetorical Criticism II
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: 008:160 or 010:132 or 129:130. Same as 010:133, 129:131, 160:162.

008:167 Literature and Culture of Empire
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:168 Topics in Poetry and Poetics
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

008:169 Changing Concepts of Women in Literature
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 131:169.

008:170 Literary Genres and Modes
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:171 Digital Media and Poetics
Theory and practice of one or more varieties of digital composition; digital art analyzed and created in specific forms--radio drama, interactive fiction, procedural and constructivist poetics. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:172 Narrative and the Cinema
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 048:172.

008:173 Topics in Digital Media  
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:174 Topics in Law and Culture  
Cultural studies methodologies adapted to examining the relationship between law and culture; area focus and topics vary.

008:175 Topics in Film and Literature  
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 048:175.

008:176 Literature and Philosophic Thought  
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:177 Literature and Art  
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 048:177.

008:178 Modern British Drama  
English majors may apply this course to the following area and/or period requirement. AREA: Modern British Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature.

008:179 Literature and Society  
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 048:179.

008:180 American Drama Before 1900  
American playwrights and plays before 1900. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature.

008:182 Science Fiction  
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:183 Modern Drama  
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:185 Native American Autobiography  
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 149:185.

008:186 African American Drama  
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 049:186, 129:186.

008:187 Handprinted Book: Design and Production  
3 s.h.
Exploration of problems in hand-printing books—choice of manuscript, editing, design, typesetting, proofreading, printing and binding; histories of printing and of the book, emphasis on 20th-century book design and literature. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: consent of instructor. Same as 01P:161, 108:161.
008:188 Prose by Women Writers
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 131:188.

008:189 Digital Cultures and Literacies
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:190 Topics in Book History
3 s.h.
Authorship, publishing, and so forth within specific historical and cultural contexts. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 108:186.

008:191 International Literature Today
1-3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 181:191.

008:192 Seminar in Interdisciplinary Studies
3-4 s.h.
Exploration of how readings of theory can be evaluated through discussions and readings in literature; seminar. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:193 Transcultural Modernism
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:194 Introduction to Feminist Criticism
3 s.h.
Introduction to feminist interpretation of literature, feminist literature, feminist theories, and uses of literature in forming feminist politics. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 131:194.

008:195 Modernist Women Writers
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Postcolonial Studies. PERIOD: 20th- and/or 21st-Century Literature.

008:196 American Novel Since 1945
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature.

008:197 American Drama Since 1900
3 s.h.
American playwrights and plays after 1900. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 049:117.

Nonfiction and Creative Writing

Courses 08C:023 Creative Writing, 08C:097 Fiction Writing, 08C:098 Poetry Writing, 08C:163 Undergraduate Writers' Workshop: Fiction, 08C:166 Undergraduate Writers' Workshop: Poetry, 08C:167 Undergraduate Writers' Seminar, 08C:195 Undergraduate Project in Creative Writing, 08N:119 Writing for Interdisciplinary Audiences, 08N:120 Advanced Nonfiction Writing, 08N:130 Special Readings in Nonfiction, 08N:145 Multimedia Writing, 08N:150 Undergraduate Essay Workshop, and 08N:199 Undergraduate Project in Nonfiction Writing may be repeated. Others may be repeated with consent of the instructor. Courses 08N:090 Intermediate Nonfiction Writing, 08N:120 Advanced Nonfiction Writing, and 08N:130 Special Readings in Nonfiction have prerequisites. Course 08N:150 Undergraduate Essay Workshop requires consent of instructor (see course description on ISIS). Creative Writing Studio Workshop (08C:001) and Introduction to Creative Nonfiction (08N:020) cannot be counted toward the English major or minor.

08C:023 Creative Writing
3 s.h.
Guidance in the process of writing fiction and poetry; writing as exploration; development of students' critical skills as readers; application of new knowledge and skills to students' own writing. English majors may apply this course (except EX sections) to the following area and/or period requirement. AREA: Nonfiction and Creative Writing; PERIOD: 20th- and/or 21st-Century Literature.

08C:097 Fiction Writing 3 s.h.
Analysis of works of accomplished fiction writers; critique of class members' short stories, in writing and in class; discussion of how class members use language, characterization, point of view, other elements of fiction in their work. English majors may apply this course (except EX sections) to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08C:098 Poetry Writing 3 s.h.
Careful writing of poems, reading of poetry by class members as well as established poets; supportive workshop context. English majors may apply this course (except EX sections) to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08C:107 Creative Writing for the Health Professions 3 s.h.
Same as 145:107.

08C:108 Creative Writing for New Media 3 s.h.
Prepares creative writers for evolving marketplace of electronic text, media; experience writing in varied media such as the Internet, e-books, video games, mobile devices, emergent social narratives. Same as 145:108.

08C:110 Creative Writing for the Ecologically Aware: Stories in the Land 3 s.h.
How humans tether to their environment through stories; students write stories and through writing explore if there is a new tie to sustainable history. Same as 145:110.

08C:115 Creative Writing and Popular Culture 3 s.h.
Creative writing through the lens of popular culture; topics include television, film writing, adaptations, commercials, advertising, magazines, newspapers, comic books, song lyrics, billboards, and backs of cereal boxes. Same as 145:115.

08C:163 Undergraduate Writers' Workshop: Fiction arr.
English majors may apply this course (except EX sections) to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: consent of instructor.

08C:166 Undergraduate Writers' Workshop: Poetry arr.
English majors may apply this course (except EX sections) to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: consent of instructor.

08C:167 Undergraduate Writers' Seminar 3 s.h.
Exploration of literature to develop substance and craft; class sessions designed around topic chosen by instructor; modeled after Writers' Workshop graduate reading seminars. Prerequisite: completion of rhetoric requirement.

08N:050 Word Power: Building English Vocabulary 3 s.h.
Analysis of unfamiliar English words through knowledge of the history and meaning of word parts. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: one semester of rhetoric. Same as 20E:050.

08N:080 Nonfiction Writing 3 s.h.
Forms of nonfiction explored in workshop environment; experience in all stages of the writing process; portfolio; for English majors. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08N:090 Intermediate Nonfiction Writing 3 s.h.
Readings that illustrate the tradition of nonfiction writing; history of writers such as Herodotus, Erasmus, Sei Shonagon, Montaigne, Defoe, Basho, Addison and Steele, Hazlitt, Lamb, Wolfe, Didion, McPhee, Orlean, Singer; the varied forms of nonfiction, e.g., lyric essay, science essay, travel writing, review writing. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: undergraduate standing and 08N:080 or equivalent.
08N:102 Prose Style
Sentences: how they work, what they do; how sentences can help writing, expand understanding of prose style, stretch options. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08N:104 Personal Writing
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08N:113 Writing for Business and Industry
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08N:119 Writing for Interdisciplinary Audiences
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 024:119, 153:119, 154:119.

08N:120 Advanced Nonfiction Writing
Essay writing; focus on workshop environment. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: undergraduate standing, and 08N:080 or consent of instructor.

08N:125 Freelance Reporting and Writing
Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching periodical markets, writing queries, writing and rewriting articles for publication. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: 019:098 and journalism major, or consent of undergraduate director. Same as 019:125.

08N:130 Special Readings in Nonfiction
A particular author, genre, or structure in nonfiction; close readings of published essays; focus on students' writing in relation to the special topic. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: undergraduate standing, and 08N:080 or 08N:090 or consent of instructor.

08N:133 Advanced Writing for Business
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08N:140 Editing a Literary Magazine
Introduction to literary magazines; hands-on experience. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: successful completion of four English courses and consent of instructor.

08N:141 Approaches to Teaching Writing
Theories, practices, strategies, and history of writing and teaching writing. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 07S:155.

08N:145 Multimedia Writing
Multidisciplinary sessions mixing media production, creative nonfiction, and literary theory; topics ranging from hypertext authoring and electronic magazine publishing to sound art and digital video; principles and practices of writing for alternative media, theoretical understanding of how various media frame the situation; radio essay, video essay, interactive animation, web authoring, electronic magazine publishing. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: consent of instructor.

08N:146 Film and Writing
Writers' introduction to digital video; compelling forms of nonfiction filmmaking from the film essay to the environmental documentary; how to convert texts into film, conduct interviews, and shoot and edit digital video; emphasis on careful analysis and making of whitely films.
08N:147 Graphic Writing
The photo essay and the graphic memoir, two modes of nonfiction that have steadily increased in prominence and popularity; key texts in both genres (i.e., Dorothea Lange's *American Exodus*, Marjane Satrapi's *Persepolis*, or Art Spiegelman's *Maus*); writing and producing photo essays and short graphic memoirs.

08N:148 Radio and Writing
Writing with sound; introduction to radio essays and documentaries with focus on digital audio; analyze key radio works and essayists; produce voiceovers, record interviews, mix music, edit sound and spoken texts in making radio art.

08N:150 Undergraduate Essay Workshop
Experience working on new nonfiction projects, drafting and preparing one piece throughout a semester; individualized work to promote understanding of and creation in genres of nonfiction writing. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: undergraduate standing, successful completion of two 08N courses, submission of manuscript, and consent of instructor.

08N:183 Invention
How to get writing going, keep it going, and write in an authentic meaningful way. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 160:183.

08N:192 Dublin Writing Workshop
Intensive writing workshops for aspiring creative writers; study abroad in Dublin, Ireland. English majors may apply this course to the following area and/or period requirement. AREA: Nonfiction and Creative Writing. PERIOD: 20th- and/or 21st-Century Literature.

08N:199 Undergraduate Project in Nonfiction Writing
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature.

08N:202 Teaching Nonfiction
Theories and practices of teaching nonfiction writing; writing workshop approaches, strategies to encourage response and revision, connections between reading and writing, diversity of form, language, and assessment.

Writers' Seminars

8WS:120 Writer's House Seminar
In-depth focus on works by and about visiting writers and literature that contextualizes their work; multiple genres; seminar. Prerequisite: English major and admission to Undergraduate Creative Writing track.

8WS:121 Writers' Seminar: Fiction
In-depth exploration and analysis of creative works in fiction. Prerequisites: English major and admission to Undergraduate Creative Writing track. Corequisite: 8WS:120.

8WS:122 Writers' Seminar: Poetry
Indepth exploration and analysis of creative works in poetry. Prerequisites: English major and admission to Undergraduate Creative Writing track. Corequisite: 8WS:120.

8WS:123 Writers' Seminar: Nonfiction
Rigorous exploration and analysis of a range of nonfiction creative works. Prerequisites: English major and admission to Undergraduate Creative Writing track. Corequisite: 8WS:120.

8WS:124 Writers' Seminar: Literary Translation
Rigorous exploration and analysis of a range of creative works in literary translation. Prerequisites: English major and admission to Undergraduate Creative Writing track. Corequisite: 8WS:120.

8WS:125 Writers' Seminar: Playwriting
Rigorous exploration and analysis of a range of creative works in drama. Prerequisite: admission to Undergraduate Creative Writing track. Corequisite: 8WS:120.

8WS:170 Creative Writing Track: Advanced Topics 3 s.h.
Advanced writing and reading for undergraduate creative writing track; topics vary. Prerequisite: admission to Undergraduate Creative Writing track.

Special Topics
These courses do not fulfill area or period requirements for the English major. They may be used to earn elective credit in the major.

008:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

008:040 Major Texts in World Literature I 3 s.h.
Reading, analysis of major literary texts from writing's origins to 1600 in the Mediterranean, Asia, Africa; interrelationship of literature and history. GE: Humanities. Same as 048:040.

008:041 Major Texts of World Literature II 3 s.h.
Reading and analysis of major literary texts from the 17th century to the present, in chronological sequence; emphasis on interrelationship of literature and history. Prerequisite: completion of rhetoric requirement. GE: Humanities. Same as 048:041.

008:125 Classical Mythology 3 s.h.
Ancient Greek and Roman myths, their interpretation by Western civilization; emphasis on flexibility of myth and its importance for art, literature, anthropological, psychological studies. GE: Humanities. Same as 20E:112.

008:151 Literature and Anthropology 3 s.h.
Topics vary. Same as 048:151, 113:109.

008:155 Tolstoy and Dostoevsky 3-4 s.h.
Tolstoy's War and Peace, Anna Karenina; Dostoevsky's Crime and Punishment, The Brothers Karamazov, and short stories. Taught in English. Same as 041:155.

008:156 Invitation to Nabokov 3 s.h.
Nabokov's works and his writings on Russian literature. Same as 041:156, 048:156.

008:159 African Literature Today 3 s.h.
Contemporary written and oral African literary texts, literary theories relevant to study of African literatures. Same as 048:159, 187:159.

008:181 Issues in Rhetoric and Culture 3 s.h.
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: (for 036:146) 2.60 cumulative g.p.a., 036:001, and completion of research and criticism and theory requirements. Same as 010:160, 036:146, 048:160, 160:160.

008:199 Special Project for Undergraduates arr.

Honors

008:098 Honors Proseminar 4 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: varies. PERIOD: Early Literatures Through 17th Century, or 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Prerequisites: 3.20 cumulative g.p.a. and consent of English honors director.

008:120 Honors Thesis Workshop 3 s.h.
Prerequisites: 008:098, admission to English department honors program, and consent of English honors director.

008:198 Undergraduate Honors Project
Prerequisites: admission to English honors program and consent of instructor.

Literature for Graduate Students

Department of English graduate courses are repeatable with the written approval of the department's director of graduate studies.

Introductory Course

008:201 Introduction to Graduate Study
1 s.h.

Graduate Reading Courses

008:210 Doctoral Workshop in English
arr.

008:212 Bible and Literature
3 s.h.

008:216 Medieval Authors
3 s.h.

008:218 Readings in Medieval Literature and Culture
3 s.h.

008:219 Sixteenth- and Seventeenth-Century Authors
3 s.h.

008:220 Readings in Sixteenth- and Seventeenth-Century Genres
3 s.h.

008:222 Restoration and Eighteenth-Century Literature
3 s.h.

008:223 Romantic Literature
Same as 048:223.

008:224 Victorian Literature
3 s.h.

008:225 Late Victorian and Edwardian Literature
3 s.h.

008:226 Readings in African Literature
3 s.h.

008:228 Studies in African American Literature
3 s.h.

008:229 Introduction to Contemporary Theory
3 s.h.

008:234 Readings in South Asian Literature
Same as 048:234.

008:235 Readings in Twentieth-Century Literatures I
3 s.h.

008:236 Readings in Twentieth-Century Literatures II
3 s.h.

008:237 Indigenous Writings
3 s.h.

008:238 Readings in American Indian Literature
3 s.h.

008:239 Queer Theory
Same as 048:239.
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<th>Course Code</th>
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<td>Readings in American Literary Genres</td>
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<td>008:241</td>
<td>Topics in Contemporary Literature</td>
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<td>008:242</td>
<td>African American Cultural and Literary Criticism 1900-Present</td>
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<td>Feminist Cultural Studies</td>
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<td>008:244</td>
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<td>Readings in American Literature</td>
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<td>008:247</td>
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<td>African American Cultural and Literary Criticism 1900-Present</td>
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008:274 Postcolonial Women's Writing
Same as 131:274.

008:275 Literature as Letters
3 s.h.

008:276 Writing and Revolution
3 s.h.

008:280 Reading the Image
Assessment and preparation of strategies for interdisciplinary discussion of image textualization.
3 s.h.

008:283 New Media Poetics
3 s.h.

Graduate Special Topics

008:313 Digital Rhetoric
Current discourse (utopic, dystopic, other strands) about the Internet as it shapes and is shaped by competing forces.
Repeatable. Same as 160:313, 650:313.
3 s.h.

008:315 Current Issues in Rhetoric
Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their
3 s.h.

Seminars
Advanced work in literary history, criticism, and theory; concentration varies from semester to semester.

008:231 Crossing Borders Seminar
181:247.
2-3 s.h.

008:402 Seminar: Medieval Literature and Culture
Same as 048:402.
arr.

008:407 Seminar: Renaissance Literature
Same as 048:407.
arr.

008:418 Seminar: Bodies Politic
3 s.h.

008:421 Seminar: Restoration and Eighteenth-Century Literature
arr.

008:431 Seminar: Romantic Literatures
arr.

008:432 Seminar: Victorian Literature
arr.

008:440 Seminar: Studies in the Twentieth Century
arr.

008:450 Seminar: Postcolonial Studies
Same as 048:454.
3 s.h.

008:452 Walt Whitman
Walt Whitman's writings and career.
3 s.h.

008:458 Seminar: American Literature and Culture
arr.

008:459 Seminar: Reading Place and Scale
3 s.h.

008:460 Seminar: Problems in Aesthetics and Literary Theory
arr.
Same as 048:460.

**008:461 Seminar: Literary Criticism and Theory**  
Analysis of issues in current literary criticism and theory and of texts from related fields, such as aesthetics, cultural studies, political science, psychology, and philosophy.

**008:462 Seminar: Cultural Studies**

Independent Study

**008:500 Advanced Studies in an Author**

**008:505 Advanced Studies in a Literary Period**

**008:510 Advanced Studies in a Literary Form**

**008:515 Advanced Studies in a Literary Genre**

**008:520 Advanced Studies in a Literary Mode**

**008:525 Advanced Studies in a Literary Movement**

**008:530 Advanced Studies in a Literary Theme**

**008:535 Advanced Studies in Literary Criticism**

**008:550 Advanced Studies in an Interdisciplinary Subject**

**008:585 M.A. Thesis in Literary Studies**

**008:590 Special Project for Graduate Students**

**008:595 Ph.D. Thesis**

**Linguistics and Language**

The undergraduate courses below do not fulfill area or period requirements for the English major but may be used to earn elective credit for the major.

**08L:100 Introduction to Linguistics**  
Introduction to the study of human language: sounds and their contrasts and variation, words and meaningful subunits, sentence structure, historical change. Same as 103:100, 113:100.

**08L:131 History of the English Language**  
Development of phonological and grammatical structure of English, from Old to Modern English; dialectal differentiation in English. Prerequisite: 103:100 or equivalent. Same as 103:131.

**Professional Training**

The following courses offer theoretical and practical training for those who plan to teach.

**08P:182 Language and Learning**  
2-3 s.h.
How language reflects and constructs learners' identities and cultures; readings related to oral and written language, native and second language development, linguistic diversity; discussion of the relationship of language theory to schools of language instruction. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as 07E:182, 07S:182.

08P:190 Methods: Secondary English
Organizational techniques, methods, materials for teaching high school English; experience in simulated teaching situations during laboratory sessions, integrated with lectures and discussions. Prerequisite: 07S:114. Same as 07S:115.

08P:198 Reading and Teaching Adolescent Literature
Reading and evaluation of literature suitable for junior and senior high school students. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as 07S:193.

08P:204 Literature for Children II
Current theory, research, and practice in reading and responding to children's literature; genre and topic vary. Same as 07E:204, 07S:204.

08P:300 Introduction to Qualitative Methods in Literacy Research
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as 07E:370, 07S:370.

08P:405 M.A. Seminar: English Education
Significant developments in English education; primary and collateral readings. Prerequisite: consent of instructor. Same as 07S:315.

08P:425 Ph.D. Seminar in Language, Literacy, and Culture
Historical, recent research and theory in literacy education; topics vary. Repeatable. Prerequisite: consent of instructor. Same as 07E:415, 07S:415.

Nonfiction Writing

Courses 08N:250 Forms of Nonfiction, 08N:255 Forms of the Essay, 08N:262 Readings in Nonfiction, 08N:350 Essay Writing Workshop, and 08N:355 Nonfiction Writing Workshop may be repeated. Others may be repeated with consent of the instructor and the director of graduate studies.

Practice in Writing
These courses give intensive attention to composition and exposition and to formal and thematic problems, both in the meditative essay and in extended works of nonfiction.

08N:250 Forms of Nonfiction

08N:255 Forms of the Essay

08N:320 Uncreative Writing
Forgery, frauds, hoaxes, avatars, and impersonations across writing and the arts; how modernist notions of chance, procedure, and repetition, and aesthetics of boredom influence current writing and art practices; experience using strategies of appropriation, replication, plagiarism, piracy, sampling, and plundering as compositional methods for writing. Repeatable. Same as 160:320.

08N:340 Writing for Learned Journals
Help for graduate students in bringing written work to publishable form; analysis of target journals' audiences and interests; submission, response to criticism. Same as 160:300, 650:300.

08N:350 Essay Writing Workshop

08N:355 Nonfiction Writing Workshop
Repeatable.

Theory and Practice of Writing
These courses combine theory and analysis of nonfiction writing with practical experimentation in writing. They are intended for people who want to practice, criticize, and/or teach nonfiction writing.

08N:262 Readings in Nonfiction 3 s.h.
Same as 160:262.

08N:270 Twenty-first-Century Nonfiction arr.

08N:365 Overseas Writing Workshop arr.

08N:375 Teaching in a Writing Center 3 s.h.
Seminar/practicum to prepare graduate students to teach in the University of Iowa Writing Center or similar settings; seminar component on writing and reading processes, tutoring strategies, English-as-a-second-language issues; practicum experience tutoring in the Writing Center. Same as 010:375.

Independent Study
08N:550 Special Project in Nonfiction Writing arr.

08N:580 Thesis in Nonfiction Writing arr.

Creative Writing
All may be repeated.

Workshops and Seminars
Open only to Iowa Writers' Workshop students or to others with consent of instructor.

08C:251 Fiction Workshop arr.

08C:252 Poetry Workshop arr.

08C:270 Form of Fiction 3 s.h.

08C:275 Form of Poetry 3 s.h.

08C:297 Fiction Writing 3 s.h.
Reading and discussion of published stories and those written by class members, with the aim of improving writing through careful reading and reflection, spirited discussion, and written comments. Repeatable.

08C:298 Poetry Writing 3 s.h.
Careful writing and reading of poems by students as well as by established poets; thorough discussion in a supportive context. Repeatable.

08C:490 Seminar: Problems in Modern Fiction arr.

08C:495 Seminar: Problems in Modern Poetry arr.

Independent Study
08C:195 Undergraduate Project in Creative Writing arr.
Period: 20th- and/or 21st-century literature. Prerequisite: consent of instructor.

08C:555 Graduate Project in Creative Writing

08C:590 M.F.A. Thesis

Translation Studies
The undergraduate courses below do not fulfill area or period requirements for the English major but may be used to earn elective credit for the major.

08W:079 Undergraduate Translation Workshop 3 s.h.
Translation exercises, discussion of translation works in progress; alternative strategies for translation projects. Prerequisite: working knowledge of a language other than English. Same as 048:079.

08W:260 Translation Workshop 3 s.h.
Prerequisites: at least one foreign language and consent of instructor. Same as 048:260, 181:260.

08W:265 Seminar Issues in the History of Translation 3 s.h.
Selected readings, current debate on translation's history and theory. Same as 048:270.
Environmental Sciences

Coordinator: Stephen D. Hendrix
Executive committee chair: Mark K. Reagan
Affiliated faculty: Jonathan M. Adrain (Geoscience), Marc P. Armstrong (Geography), Richard G. Baker (Geoscience), David A. Bennett (Geography), E. Arthur Bettis III (Geoscience), Christopher A. Brochu (Geoscience), Ann F. Budd (Geoscience), Gregory R. Carmichael (Chemical and Biochemical Engineering), Josep Comeron (Biology), Robert W. Cruden (Biology), Jeffrey Dorale (Geoscience), C. Thomas Foster Jr. (Geoscience), Jane A. Gilotti (Geoscience), Vicki H. Grassian (Chemistry), Philip H. Heckel (Geoscience), Diana G. Horton (Biology), Naresh Kumar (Geography), Sarah C. Larsen (Chemistry), Johna Leddy (Chemistry), Marc A. Linderman (Geography), John Logsdon (Biology), Bryant F. MacAllister (Biology), Leonard R. MacGillivray (Chemistry), George P. Malanson (Geography), William C. McClelland (Geoscience), Maurine Neiman (Biology), David W. Peate (Geoscience), R. Rajagopal (Geography), Mark K. Reagan (Geoscience), Jeffry T. Schabilion (Biology), Michelle M. Scherer (Civil and Environmental Engineering), Jerald L. Schnoor (Civil and Environmental Engineering), Holmes A. Semken (Geoscience), Hallie J. Sims (Geoscience), Nelson Ting (Anthropology), Ingrid Ukstins Peate (Geoscience), Larry J. Weber (Civil and Environmental Engineering), Frank Weirich (Geoscience), You-kuan Zhang (Geoscience)

Undergraduate degree: B.S. in Environmental Sciences
Undergraduate nondegree program: Minor in Environmental Sciences
Web site: http://www.uiowa.edu/~envsci

The Environmental Sciences Program provides rigorous interdisciplinary training in the scientific study of the environment. It promotes an understanding of the earth as a complex network of interacting organic and inorganic systems. The program's four tracks--environmental biosciences, environmental chemical sciences, environmental geosciences, and environmental hydrosciences--reflect the diversity in the broad field of environmental sciences and take advantage of the College of Liberal Arts and Sciences' disciplinary strengths, offering students an opportunity to develop particular areas of expertise.

Hands-on field experience is a crucial component of the program. Students are strongly encouraged to engage in research and study abroad.

The Department of Geoscience is the administrative home for the Environmental Sciences Program.

Undergraduate Programs

The program offers a Bachelor of Science and a minor in environmental sciences.

Bachelor of Science

The B.S. in environmental sciences requires a minimum of 120 s.h., including 83-85 s.h. of work for the major. Students must complete the College of Liberal Arts and Sciences General Education Program; courses required for the major in environmental sciences also may be used to satisfy the General Education Program requirements.

Environmental sciences students complete requirements in three areas: the science and mathematics foundation, the environmental sciences foundation, and one of four environmental sciences tracks. Each student is assigned an advisor who specializes in his or her track.

The science and mathematics foundation develops fundamental skills and comprehension in biology, chemistry, geology, mathematics, and statistics. The environmental sciences foundation includes an introductory course in environmental science and an array of courses that focus on remote sensing techniques, design and use of geographic information technologies, the geomorphic and environmental processes that shape the earth's surface, and ecological factors that influence the distribution and abundance of organisms.

Each of the four environmental sciences tracks focuses on one aspect of environmental sciences:

Environmental biosciences (green) track--biological systems and ecological approaches;
Environmental chemical sciences (yellow) track--environmental systems and chemistry;
Environmental geosciences (brown) track--earth materials and surficial geologic processes; and
Environmental hydrosciences (blue) track--hydrogeology and hydrogeologic systems, and water chemistry.

The tracks aim to prepare scientists who can tackle problems that require particular areas of expertise, and to help students develop the skills needed for future employment or graduate study.

Requirements for the major are as follows.

SCIENCE AND MATHEMATICS FOUNDATION

Students must complete at least 31 s.h. of course work for the science and mathematics foundation, as follows. All of these:

002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
012:005 Introduction to Geology  
22M:025-22M:026 Calculus I-II  
4 s.h.  
8 s.h.

One of these:

22S:039 Probability and Statistics for the Engineering and Physical Sciences  
22S:101 Biostatistics  
22S:105 Statistical Methods and Computing  
3 s.h.  
3 s.h.  
3 s.h.

ENVIRONMENTAL SCIENCES FOUNDATION

Students must complete at least 19 s.h. of course work for the environmental sciences foundation, as follows.

All of these:

159:008 Introduction to Environmental Science  
159:100 Environmental Sciences Seminar (section 1 for 0 s.h. and section 2 for 1 s.h.)  
159:102 Earth Surface Processes  
159:110 Introduction to Applied Remote Sensing  
159:134 Ecology  
044:005 Foundations of GIS  
4 s.h.  
1 s.h.  
3 s.h.  
4 s.h.  
3 s.h.

Tracks

Environmental sciences students must choose one of the following four tracks. Each track includes required general sciences courses, track foundation courses, field study courses, and elective courses.

ENVIRONMENTAL BIOSCIENCES (GREEN) TRACK

The environmental biosciences track provides the essential skills for entry-level positions that require a good knowledge of biotic systems and the ability to inventory biologic resources. The track's aim is to produce scientists who are capable of tackling environmental problems in which links and interactions with life sciences are crucial and in which a substantial knowledge of biological/ecological sciences is required. The track also provides a strong foundation for graduate or professional training in disciplines such as ecology, wildlife management, and natural resource management.

Students must complete at least 33 s.h. of environmental biosciences track course work, including one 4 s.h. field course at Iowa Lakeside Laboratory.

General Sciences

004:121 Organic Chemistry I  
3 s.h.

Students are encouraged to take at least one semester of physics.

Environmental Biosciences Foundation

Both of these:

002:128 Fundamental Genetics  
002:131 Evolution  
4 s.h.  
4 s.h.

At least 7 s.h. from these:

002:100 Plant Diversity and Evolution  
002:103/044:103 Biogeography  
002:108 Vertebrate Zoology  
002:113 Ecological Plant Anatomy  
002:140 Systematics: Classifying Biodiversity  
012:107 Marine Ecosystems and Conservation  
012:122 Evolution of the Vertebrates  
012:170 Evolution of Ecosystems  
4 s.h.  
3 s.h.  
4 s.h.  
4 s.h.  
3 s.h.  
3 s.h.  
3 s.h.  
3 s.h.
Environmental Biosciences Field Study

At least 4 s.h. from these Iowa Lakeside Laboratory courses:

- 00L:103 Aquatic Ecology 4 s.h.
- 00L:105 Plant Taxonomy 4 s.h.
- 00L:109 Freshwater Algae 4 s.h.
- 00L:115 Field Mycology 4 s.h.
- 00L:117 Ecology and Systematics of Diatoms 4 s.h.
- 00L:121 Plant Ecology 4 s.h.
- 00L:122 Prairie Ecology 4 s.h.
- 00L:126 Ornithology 4 s.h.
- 00L:128 Fish Ecology 4 s.h.
- 00L:129 Vertebrate Ecology and Evolution 4 s.h.
- 00L:160 Restoration Ecology 4 s.h.
- 00L:163 Conservation Biology 4 s.h.

Environmental Biosciences Electives

Students must complete at least 11 s.h. of elective course work, with at least 7 s.h. from the following list. An additional field study course (see "Environmental Biosciences Field Study" above) may be used for 4 s.h. of the 11 s.h. of elective course work. A maximum of one policy course may be included in the 11 s.h. of electives (06E:133 Environmental and Natural Resource Economics, 044:019 Contemporary Environmental Issues, 044:122 Environmental Conservation in the United States, and 044:125 Environmental Impact Analysis).

- 002:124 Animal Physiology 3 s.h.
- 002:143 Animal Behavior 4 s.h.
- 002:162 Population Genetics and Molecular Evolution 3 s.h.
- 002:196 Honors Investigations arr.
- 002:199 Introduction to Research 3 s.h.
- 004:111 Analytical Chemistry I 3 s.h.
- 004:112 Analytical Chemistry II 3 s.h.
- 06E:133 Environmental and Natural Resource Economics 3 s.h.
- 012:108 Introduction to Oceanography 2 s.h.
- 012:121 Principles of Paleontology 3 s.h.
- 012:173 Quaternary Environments 3 s.h.
- 22S:148 Intermediate Statistical Methods 4 s.h.
- 044:019 Contemporary Environmental Issues 3 s.h.
- 044:101 Climatology 3 s.h.
- 044:122 Environmental Conservation in the United States 3 s.h.
- 044:123 Landscape Ecology 3 s.h.
- 044:125 Environmental Impact Analysis 4 s.h.
- 044:126 Wetlands: Function, Geography, and Management 3 s.h.
- 213:152 Primate Conservation Biology 3 s.h.

ENVIRONMENTAL CHEMICAL SCIENCES (YELLOW) TRACK

The environmental chemical sciences track provides the essential skills for entry-level positions that require a basic understanding of chemical principles and a working knowledge of basic chemical concepts as applied in the environment. The track's aim is to produce scientists who are capable of tackling environmental problems in which chemical and molecular processes play an important role. The track also provides a strong foundation for graduate or professional training in environmental chemistry.

Students must complete at least 35 s.h. of environmental chemical sciences track course work.
General Sciences

One of these sequences:
029:011-029:012 College Physics I-II
029:081-029:082 Introductory Physics I-II
8 s.h.

Environmental Chemical Sciences Foundation

004:111-004:112 Analytical Chemistry I-II
6 s.h.

One of these sequences:
004:121-004:122 Organic Chemistry I-II
004:123-004:124 Organic Chemistry I for Majors - Organic Chemistry II for Majors
6 s.h.

One of these:
004:131 Physical Chemistry I
004:132 Physical Chemistry II
3 s.h. 3 s.h.

Chemical Sciences Lab and Field Study

Both of these:
004:141 Organic Chemistry Laboratory
004:143 Analytical Measurements
3 s.h. 3 s.h.

Environmental Chemical Sciences Electives

Students must complete at least 6 s.h. of elective courses, chosen from the following list. (Students may petition the chemistry department's environmental sciences advisor to use appropriate 100- and 200-level courses taught in the chemistry department as electives.) A maximum of one policy course may be included in the 6 s.h. of electives (06E:133 Environmental and Natural Resource Economics, 044:019 Contemporary Environmental Issues, 044:122 Environmental Conservation in the United States, and 044:125 Environmental Impact Analysis).

004:125 Inorganic Chemistry
004:162 Undergraduate Research
004:173 Atmospheric and Environmental Chemistry
06E:133 Environmental and Natural Resource Economics
012:149 Elements of Geochemistry
012:152 Isotope Geochemistry
012:194 Environmental Field Methods
044:019 Contemporary Environmental Issues
044:101 Climatology
044:122 Environmental Conservation in the United States
044:125 Environmental Impact Analysis
053:152 Environmental Chemistry I
053:153 Environmental Chemistry Laboratory
053:252 Environmental Chemistry II
099:110 Biochemistry
2 s.h. 1-3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.

004:131 Physical Chemistry I (if not taken as a foundation course)
or
004:132 Physical Chemistry II (if not taken as a foundation course)
3 s.h. 3 s.h.
ENVIRONMENTAL GEOSCIENCES (BROWN) TRACK

The environmental geosciences track provides the essential skills for entry-level positions that require a basic understanding of geologic principles and a working knowledge of basic geologic concepts applied in the environmental industry. The track’s aim is to produce scientists who are capable of tackling environmental problems in which earth materials and surficial geologic processes are of primary importance. The track also lays a strong foundation for graduate study in environmental geology, engineering geology, and natural hazards assessment.

Students must complete at least 34 s.h. of environmental geosciences track course work.

General Sciences

029:008 Basic Physics 4 s.h.

Students are strongly encouraged to take additional course work in physics.

Environmental Geosciences Foundation

All of these:

- 012:041 Mineralogy 4 s.h.
- 012:052 Petrology 4 s.h.
- 012:092 Structural Geology 4 s.h.
- 012:136 Soil Genesis and Geomorphology 3 s.h.
- 012:179 Geology for Engineers 3 s.h.

Environmental Geosciences Field Study

012:093 Geologic Field Methods 3 s.h.

One of these:

- 00L:142 Watershed Hydrology and Surficial Processes 4 s.h.
- 044:180 Field Methods in Physical Geography 3 s.h.

Environmental Geosciences Electives

Students must complete at least 6 s.h. of elective courses, chosen from the following list. A maximum of one policy course may be included in the 6 s.h. of electives (06E:133 Environmental and Natural Resource Economics, 044:019 Contemporary Environmental Issues, 044:122 Environmental Conservation in the United States, and 044:125 Environmental Impact Analysis).

- 06E:133 Environmental and Natural Resource Economics 3 s.h.
- 012:108 Introduction to Oceanography 2 s.h.
- 012:114 Energy and the Environment 3 s.h.
- 012:119 Directed Study arr.
- 012:130 Sedimentary Geology/Stratigraphy 3 s.h.
- 012:138 Fluvial Geomorphology 3 s.h.
- 012:139 Integrated Watershed Analysis 3 s.h.
- 012:140 Natural Hazards 3 s.h.
- 012:149 Elements of Geochemistry 3 s.h.
- 012:152 Isotope Geochemistry 3 s.h.
- 012:166 Hydrogeology 3 s.h.
- 012:172 Glacial and Pleistocene Geology 3 s.h.
- 012:178 Applied Geostatistics 3 s.h.
- 012:180 Survey of Geophysical Methods 3 s.h.
- 012:191 Geotectonics 3 s.h.
- 044:019 Contemporary Environmental Issues 3 s.h.
- 044:101 Climatology 3 s.h.
- 044:122 Environmental Conservation in the United States 3 s.h.
- 044:125 Environmental Impact Analysis 4 s.h.
- 053:050 Natural Environmental Systems 3 s.h.
ENVIRONMENTAL HYDROSCIENCES (BLUE) TRACK

The environmental hydrosciences track provides the essential skills for entry-level positions that require a basic understanding of geologic principles and a working knowledge of hydrogeology and hydrogeochemistry. The track’s aim is to produce scientists who are capable of tackling environmental problems that emphasize hydrogeologic systems and for which substantial knowledge of hydrogeology and water chemistry are essential. The track also lays a strong foundation for graduate education in hydrogeology, hydrology, geochemistry, and aqueous chemistry.

Students must complete at least 34 s.h. of environmental hydrosciences track course work.

**General Sciences**

029:011-029:012 College Physics I-II 8 s.h.

**Environmental Hydrosciences Foundation**

Both of these:

012:166 Hydrogeology 3 s.h.
012:179 Geology for Engineers 3 s.h.

One of these:

012:138 Fluvial Geomorphology 3 s.h.
012:139 Integrated Watershed Analysis 3 s.h.

One of these:

012:149 Elements of Geochemistry 3 s.h.
053:152 Environmental Chemistry I 3 s.h.

**Environmental Hydrosciences Field Study**

One of these:

044:180 Field Methods in Physical Geography 3 s.h.
00L:142 Watershed Hydrology and Surficial Processes 4 s.h.

**Environmental Hydrosciences Electives**

Students must complete at least 11 s.h. of elective courses, chosen from the following list. A maximum of one policy course may be included in the 11 s.h. of electives (06E:133 Environmental and Natural Resource Economics, 044:019 Contemporary Environmental Issues, 044:122 Environmental Conservation in the United States and 044:125 Environmental Impact Analysis).

06E:133 Environmental and Natural Resource Economics 3 s.h.
012:108 Introduction to Oceanography 2 s.h.
012:119 Directed Study arr.
012:130 Sedimentary Geology/Stratigraphy 3 s.h.
012:178 Applied Geostatistics 3 s.h.
012:180 Survey of Geophysical Methods 3 s.h.
012:184 Groundwater Modeling 3 s.h.
044:019 Contemporary Environmental Issues 3 s.h.
044:101 Climatology 3 s.h.
044:122 Environmental Conservation in the United States 3 s.h.
044:125 Environmental Impact Analysis 4 s.h.
044:126 Wetlands: Function, Geography, and Management 3 s.h.
053:050 Natural Environmental Systems 3 s.h.
053:071 Principles of Hydraulics and Hydrology 3 s.h.
Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the environmental sciences major. Students work with their advisors on individual graduation plans.

Honors

Qualified students are encouraged to pursue an honors degree in environmental sciences. Honors study offers students an opportunity to engage in independent research under the guidance of a faculty sponsor chosen from the Environmental Science Program’s affiliated faculty representing six departments (anthropology, biology, chemistry, civil and environmental engineering, geography, and geoscience). Students also learn how to write the results of their research in the format of a scientific paper, and they have the experience of formally presenting their research as either a short seminar or a poster.

Environmental sciences students who wish to graduate with honors must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

To graduate with honors in environmental sciences, students must fulfill the following requirements:

- complete a B.S. in environmental sciences with a g.p.a. of at least 3.33 in all environmental sciences course work (science and mathematics foundation, environmental sciences foundation and environmental sciences tracks);
- submit a research proposal to the honors director within two months of the beginning of the semester in which the research is initiated;
- complete a minimum of 6 s.h. of honors research taken over two semesters (002:196 Honors Investigations, 004:162 Undergraduate Research, 012:119 Directed Study, or 044:195 Undergraduate Research, depending on the departmental affiliation of the faculty sponsor);
- prepare a thesis presenting the research in the format of a scientific paper with abstract, introduction, methods, results, discussion, and conclusions; the thesis must include a title page and abstract formatted according to the specifications of the Honors Program and must be submitted to the honors director at least one week before the Honors Program deadline for submission; and
- present either a short seminar or a poster about the research at a professional meeting and/or at The University of Iowa.

Beginning in their sophomore or junior year, students should identify potential faculty sponsors by conducting a web-based survey of the research interests of the program's affiliated faculty. The student should contact potential sponsors to determine who would be willing to sponsor an honors student and what research projects the student might undertake. Students who choose a sponsor whose faculty appointment is not in the College of Liberal Arts and Sciences must choose a cosponsor who does have a faculty appointment in CLAS.

After the student has identified a sponsor and the two have agreed on a project, the sponsor guides the student in the preparation of a research proposal that identifies the background, goals, methods, and significance of the research project. The proposal serves as the foundation of the honors thesis, which the student prepares under the sponsor's supervision upon completion of the research. Once the thesis is nearing completion or is completed, the student presents a short seminar or a poster detailing the purpose of the research.

Minor

The minor in Environmental Sciences requires a minimum of 16 s.h. in University of Iowa environmental sciences courses. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The following courses are required.

159:008/012:008 Introduction to Environmental Science (with lab) 4 s.h.

One environmental sciences foundation course, chosen from these:
Students also choose 8 s.h. of course work in one of the four environmental sciences tracks (environmental biosciences, environmental chemical sciences, environmental geosciences, and environmental hydrosciences; see "Tracks" earlier in this Catalog section). The courses must include one track foundation course (3-4 s.h.) and one track field study course (2-4 s.h.).

**Environmental Sciences Courses**

159:008 Introduction to Environmental Science

- Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: Natural Sciences. Same as 012:008.

159:009 Introduction to Environmental Sciences Laboratory

- Laboratory component of 012:008. Prerequisites: environmental sciences or geoscience major; and 012:008 or 159:008 for 3 s.h., or equivalent course work without a laboratory component; or consent of instructor. GE: Natural Sciences. Same as 012:009.

159:100 Environmental Sciences Seminar

- Role of sciences in environmental issues and problems; progression from observation to evaluation to design of better questions and experiments. Prerequisite: environmental sciences major.

159:102 Earth Surface Processes

- Basic geomorphic and environmental processes that shape the earth's surface; emphasis on erosion, transport, deposition by land mass movement (creep, landslides, earth flow), fluid agents (wind, water, ice); methods used to study these processes. Prerequisite: 012:005 or 012:008 or 044:003 or 159:008 or consent of instructor. Same as 012:102.

159:110 Introduction to Applied Remote Sensing

- Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Prerequisite: college physics or physical geology or equivalent. Same as 012:110.

159:134 Ecology

- Adaptations of organisms to their physical and biological environments; organism-environment interactions; population biology; interactions between species; ecology of communities, ecosystems; human impact on ecosystems. Prerequisites: 002:010, 002:011, and 22M:016 or 22M:025 or 22M:031. Same as 002:134.

159:153 Geocomputing

- Computer applications in geoscience; visualization, data management, interactive modeling, computer graphics. Same as 012:153.

159:194 Environmental Field Methods

- Integrated, comprehensive, field-based overview of environmental sampling concepts and methods for geoscience and hydroscience. Three weeks. Same as 012:194.
French and Italian

Chair: Roland Racevskis
General education language coordinators: Deborah Contrada (Italian), Peter Eubanks (French)
Professors: Cinzia Blum, Wendelin Guentner, Geoffrey R. Hope, Michel Laronde, Roland Racevskis, Steven Ungar (French and Italian/Cinema and Comparative Literature)
Professors emeriti: Jacques A. Bourgeacq, Florindo Cerreta, Simone Delaty, John T. Nothnagle
Associate professors: Deborah L. Contrada, Anny Dominique Curtius, Rosemarie Scullion (French and Italian/Women's Studies)
Visiting assistant professor: Peter Eubanks
Lecturers: Hope Fitzgerald, Jack Johnson, Katja Limattta

Undergraduate degrees: B.A. in French, Italian
Undergraduate nondegree programs: Minor in French, Italian
Graduate degrees: M.A., Ph.D. in French
Web site: http://www.uiowa.edu/~frenchit

The department introduces students to the cultures of France, the Francophone world, Italy, and parts of the Middle East, providing an understanding of those countries' historical and contemporary importance. It also facilitates development of proficiency in the French, Italian, and Arabic languages and fosters critical appreciation of French, Francophone, Italian, and Arabic literature and civilization.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in French and in Italian. It also offers a variety of electives for nonmajors and provides flexible means to complete the College of Liberal Arts and Sciences General Education Program foreign language requirement and to satisfy individual needs and interests.

Students majoring in French or Italian may combine their studies with courses in education to prepare for jobs in high school teaching. They may go on to graduate study in areas such as French, Italian, comparative literature, and other interdisciplinary areas as preparation for college-level teaching. Or they may combine other skills and studies with their major in French or Italian to prepare for challenging career opportunities in international government, business, finance, travel, communications, and other fields where the knowledge of a foreign language is essential.

Bachelor of Arts in French

The Bachelor of Arts in French requires a minimum of 120 s.h., including 31-35 s.h. of work for the major. Students complete a set of four foundation courses (10 s.h.) plus the requirements for one of four tracks (21-25 s.h.): the French and Arabic track; the language track; the literature and culture track; or the teaching track. Students also must complete the College of Liberal Arts and Sciences General Education Program.

FOUNDATION COURSES

009:111 Introduction to Reading and Writing in Literature 3 s.h.
009:112 French Grammar 3 s.h.
009:106 Oral Expression in French II 2 s.h.
009:136 Oral Expression in French III 2 s.h.

Students must maintain a g.p.a. of at least 2.00 in all major course work, including all University of Iowa course work in the major. Majors must maintain portfolios documenting their progress toward attaining the objectives of the French major.

Transfer course work is acceptable, and students are encouraged to participate in study abroad, but the last two courses in the major ordinarily must be completed at The University of Iowa. Transfer work for application to the major is evaluated on an individual basis by the faculty in charge of study abroad.

Upon declaring the major (or later, but before the senior year), students choose an emphasis in one of the following four tracks.

French and Arabic Track

The French and Arabic track is designed for students interested in combining study of the French and Arabic languages with history, politics, and religions of Middle Eastern cultures and with a major in another area, such as comparative studies, political science, geography, or history.

Requirements for the French and Arabic track include the following seven or eight courses (25 s.h.) in addition to the 10 s.h. of foundation course work in French.

Three courses in French language, or literature and culture, taught in French, of which at least one course must be numbered above 009:150
Two or three courses in Arabic language beyond first year (must total 10 s.h.)
Two courses on Middle Eastern cultures (prefix 009), taught in French or English, or approved courses from other departments

**Language Track**

The language track is designed for students with an interest in language and translation. Students work in specific areas such as international business, comparative stylistics, and translation.

Requirements for the language track include the following seven courses (21 s.h.) in addition to the 10 s.h. of foundation course work in French.

- 009:115 Business French 3 s.h.
- 009:197 Techniques of Translation 3 s.h.

Five courses in French language, or literature and culture

All language track students take 009:115 Business French and 009:197 Techniques of Translation. Of the remaining five courses, only one may be taught in English under the French department prefix (009). This restriction does not apply to courses taught in English with an additional semester hour in French. Students must complete at least two courses numbered above 009:150, including the required course 009:197 Techniques of Translation.

Courses in French stylistics and textual analysis, another language, economics, political science, and/or business administration are recommended as adjunct electives.

**Literature and Culture Track**

The literature and culture track is designed for students who are interested in combining study of French and Francophone literatures and cultures with a major in another area, such as cinema, communication studies, comparative literature, history, international studies, political science, or journalism.

Requirements for the literature and culture track include the following seven courses (21 s.h.) in addition to the 10 s.h. of foundation course work in French.

- Five courses in literature and culture
- Two courses in language, or literature and culture

Only one of these courses may be taught in English under the French department prefix (009). This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

**Teaching Track**

French majors interested in obtaining licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in French in the teaching track and must be admitted to the College of Education’s foreign language Teacher Education Program (TEP). Several courses in the College of Education are required, as is one semester of student teaching. Contact the Department of Teaching and Learning for details.

Requirements for the teaching track include the following seven courses (21 s.h.) in addition to the 10 s.h. of foundation course work in French.

- Four courses in literature and culture
- Three courses from these areas: language, literature and culture, or pedagogy

Only one of these courses may be taught in English under the French department prefix (009). This restriction does not apply to courses taught in English with an additional semester hour in French. At least two courses must be numbered above 009:150.

Students who plan to use a French minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See College of Education in the Catalog.

**Bachelor of Arts in Italian**

The B.A. in Italian requires a minimum of 120 s.h., including 31 s.h. of work for the major. Students must complete the College of Liberal Arts and Sciences General Education Program. Requirements for the major are as follows.

- 018:011-018:012 Intermediate Italian-II 8 s.h.
- 018:105 Modern Italian Fiction 3 s.h.
- 018:106 Modern Italian Poetry and Drama 3 s.h.
018:111-018:112 Advanced Italian
018:119 Medieval Italian Literature
018:120 Medieval and Renaissance Italian Literature
An additional course taught in Italian, numbered above 018:103

B.A. with Teacher Licensure

French majors seeking licensure to teach in elementary and/or secondary schools should choose the French teaching track. See "Teaching Track" under "Bachelor of Arts in French" above.

Italian majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in Italian, including an additional 2 s.h. in either 018:013 Everyday Italian I or 018:014 Everyday Italian II, and must be admitted to the College of Education's foreign language Teacher Education Program. Several courses in the College of Education are required, as is one semester of student teaching. Contact the Department of Teaching and Learning for details.

Students who plan to use an Italian minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements. See College of Education in the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

B.A. in French

Before the third semester begins: competence in first-year French and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: second-year Intermediate French II (009:012) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two semesters of third-year French (009:111 Introduction to Reading and Writing in Literature and 009:112 French Grammar), one or two other courses in the major, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 009:106 Oral Expression in French II and three more courses in the major; for students in the French language track, 009:115 Business French and 009:197 Techniques of Translation

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Italian

Before the third semester begins: competence in first-year Italian and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: competence in second-year Intermediate Italian II (018:012) and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: four courses in the major numbered above 018:103 and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of at least five courses in the major numbered above 018:103

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department participates in the University of Iowa Honors Program. To gain admission to honors in French or Italian, a student must have a University of Iowa g.p.a. of at least 3.33 and a department g.p.a. of at least 3.50, and must be a member of the University of Iowa Honors Program. Students register for 009:198 Honors Research and Thesis (in French)/018:198 Honors Research and Thesis (in Italian), and one honors-designated course numbered above 009:160 (in French) or 018:103 (in Italian). Students must complete an honors thesis or equivalent (for example, translation, comparative stylistics, cultural studies, or research paper) in French or Italian and must present their work to a faculty committee.
Minor in French

The minor in French requires a minimum of 15 s.h., including 12 s.h. in advanced courses; 9 s.h. of the 12 s.h. in advanced courses must be taken at The University of Iowa. For the minor, courses numbered 009:105 and above are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Credit from the University of Iowa Summer Program in Lyon is counted as University of Iowa credit; 6 s.h. earned in other programs abroad may be applied to the minor. Courses taught in English do not count toward the minor in French.

Minor in Italian

The minor in Italian requires a minimum of 15 s.h., including 12 s.h. in courses numbered 018:105 and above taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students must take 018:132 Images of Modern Italy for 4 s.h. in order to count it toward the minor. All courses for the minor must be taught in Italian.

Language for Nonmajors

Nonmajors who wish to study French and who have a background in the language should take the French Foreign Language Placement Test, offered online through Evaluation and Examination Service. The test helps determine the level at which a student should begin French language study at The University of Iowa.

Students without a background in French should begin with 009:001 Elementary French I.

Students who wish to fulfill the General Education Program foreign language requirement with French can choose from the following sequences.


Nonmajors who wish to study Italian and who have a background in the language should consult with the department before the beginning of classes to determine the level at which they should begin Italian language study at The University of Iowa.

Students without a background in Italian should begin with 018:001 Elementary Italian.

Students who wish to fulfill the General Education Program foreign language requirement with Italian should complete the following course sequence: 018:001 Elementary Italian, 018:002 Elementary Italian II, 018:011 Intermediate Italian, and 018:012 Intermediate Italian II. Students with strong language-learning abilities or background in another romance language can choose the sequence 018:103 Intensive Elementary Italian, 018:011 Intermediate Italian, and 018:012 Intermediate Italian II.

The Department of French and Italian is the administrative home for Arabic language and literature courses. It offers elementary and intermediate Arabic as well as conversational Arabic, for which intermediate Arabic is a prerequisite. See "Courses" at the end of this Catalog section.

Students without a background in Arabic should begin with 195:101 Elementary Modern Standard Arabic I.


Study Abroad

Summer Program in France

The department sponsors the University of Iowa Summer Program in Lyon, France. Eligibility for the program requires a good basic knowledge of French (two years of college-level preparation is recommended), but students need not be French majors. Centered in Lyon, the six-week program combines formal class work in language skills, courses in the culture and civilization of France, and visits to points of cultural and historical interest. Students may earn 8-9 s.h. in the program.

Summer Program in Quebec

The department participates in the Committee on Institutional Cooperation (CIC) Summer French Program in Quebec at the Université de Laval. The CIC is a nonprofit organization whose purpose is to foster cooperative educational opportunities among the Big Ten universities and the University of Chicago. Affiliated with the Cours d'été pour non-francophones of the Université de Laval, the program is designed to offer qualified students the opportunity to
increase their command of French in a French-speaking environment and to introduce them to the heritage and cultural traditions of a unique and vital segment of North American culture. To participate in the program, students must have taken at least two semesters of French.

**Foreign Language House**

The French and Italian department maintains close connections with the Maison Française in the International Crossroads Community at Mayflower Residence Hall. Residents initiate cultural and educational programs with the participation of the faculty and other students, providing a unique opportunity to combine living with language learning.

**Graduate Programs**

The department offers the Master of Arts and the Doctor of Philosophy in French.

The faculty's expertise allows for courses in the traditionally recognized historical periods of French literature, various literary genres, and critical theories as well as the francophone literatures of Canada, North and Sub-Saharan Africa, and the Caribbean. The department has particular strengths in interdisciplinary studies, notably in the areas of comparative arts, film studies, history, and second language acquisition.

Emphasis on language proficiency, composition, and stylistics remains integral to the M.A. program. Along with the literature-centered M.A., the department offers an M.A. in French education.

For more detailed information on graduate degrees in French, contact the Department of French and Italian or visit its web site. The department also publishes the Guide for Graduate Students and Assistants.

**Master of Arts**

The Master of Arts in French requires a minimum of 30 s.h. of graduate credit and is offered with or without thesis.

Thesis students may earn up to 6 s.h. of the required 30 s.h. for thesis work. They must take a written and oral examination on their areas of study and must defend their thesis at the time of the comprehensive examination. A thesis prospectus must be accepted one year before the student defends the thesis.

Nonthesis students must pass a written and oral examination. With permission of the director of graduate studies and the department chair, nonthesis students may take up to 6 s.h. of the required 30 s.h. outside the department or transfer up to 6 s.h. of course work taken at another institution.

All M.A. students must complete the following course work.

- 009:208 Introduction to Graduate Study in French 1 s.h.
- 009:210 Comparative Stylistics 3 s.h.
- At least four graduate-level literature or culture courses numbered 200 and above

**M.A. with French Education Emphasis**

The Master of Arts with French education emphasis requires a minimum of 38 s.h. of graduate credit in French. The program is intended primarily for prospective secondary school and junior college teachers. Candidates must pass a final written and oral examination.

All M.A. in French education students must complete the following course work.

- 009:208 Introduction to Graduate Study in French 1 s.h.
- 009:210 Comparative Stylistics 3 s.h.
- 009:234 Principles of Teaching and Learning Foreign Languages 3 s.h.
- Courses in French literature numbered 200 and above (minimum requirement) 9 s.h.

**Doctor of Philosophy**

The Doctor of Philosophy in French requires a minimum of 72 s.h. of graduate credit, including credit earned for the M.A. The program is designed to prepare students for research, teaching, and professional service normally required of college and university faculty members.

The Ph.D. takes at least three years of graduate study, including at least one year spent in residence at The University of Iowa. Students must pass a comprehensive examination and make a successful oral defense of their dissertation.

Requirements include the following.
Introduction to Graduate Study in French  
009:208 1 s.h.

Critical Theory and Practice  
009:260 3 s.h.

Thesis (6 s.h. minimum)  
009:277 6 s.h.

Three graduate courses in a related field, such as another literature, history, or philosophy (8 s.h. minimum)  
8 s.h.

Ph.D. students must possess fifth-semester or equivalent proficiency in a foreign language other than French.

Students working toward the Ph.D. are required to spend at least one year teaching as graduate assistants in the department.

Admission

Applicants to the M.A. program in French must have completed the equivalent of The University of Iowa undergraduate major in French. The M.A. in French is prerequisite to admission to the Ph.D. program in French. Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral study.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants for fall semester whose application materials are received in the department by January 15 have the best chance to be admitted and receive financial aid. They must submit academic transcripts, letters of recommendation from three persons familiar with their past academic work, Graduate Record Examination (GRE) General Test results, a statement of purpose in taking graduate work, and one or more samples of original writing, one of which should be in French, that show their ability to pursue graduate work in French (an honors thesis, term paper, seminar paper, or other course papers).

Financial Support

Teaching and research assistantships are offered through the department, and University fellowships and scholarships are available through the Graduate College. Contact the Department of French and Italian for details.

Teaching assistants in the department must take 009:234 Principles of Teaching and Learning Foreign Languages.

Exchange assistantship agreements with the University of Pau, the University of Picardie (Amiens), and the University of Poitiers provide one year of residence in France for a limited number of graduate students.

French and Italian Courses

The department offers courses in French, Italian, and Arabic. For a detailed description of courses offered each semester, contact the Department of French and Italian. French courses are conducted in French and Italian courses are conducted in Italian, unless otherwise indicated. Students may not receive credit for a course that is prerequisite to, or whose equivalent is prerequisite to, a higher-level course they have already completed.

French courses numbered 150-199 are intended primarily for advanced undergraduates; graduate students should consult with their advisor before registering for these courses.

Only one course in English may be used to fulfill requirements for the undergraduate major in French. This restriction does not apply to courses taught in English with an additional semester hour in French. Students should consult with their advisor before registering.

Students who have had significant experience with French through study or foreign residence should consult with the department before enrolling in any French course.

French, Primarily for Undergraduates

009:001 Elementary French I  
4 s.h.
For students who have no knowledge of French. Offered fall semesters. GE: Foreign Language First Level Proficiency.

009:002 Elementary French II  
4 s.h.
Offered spring semesters. Prerequisite: 009:001 or equivalent. GE: Foreign Language Second Level Proficiency.

009:005 Texts and Contexts: French-Speaking World  
3 s.h.
Development of skills in reading, understanding, and critically engaging with literary texts, and of research skills for informed inquiry; sense of oneself as a situated reader; range of texts reflecting diversity of French and Francophone writers. GE: Interpretation of Literature.
009:007 Nature/Ecology French Philosophy and Fiction 3 s.h.  
Representations of the natural world in literary works from the 16th to the 20th centuries and in film; readings in English translation. GE: Interpretation of Literature.

009:010 First-Year French Review 5 s.h.  
A year in one semester. GE: Foreign Language Second Level Proficiency.

009:011 Intermediate French I 4 s.h.  
Prerequisite: 009:002 or 009:010 or equivalent. GE: Foreign Language Second Level Proficiency.

009:012 Intermediate French II 4 s.h.  
Continuation of 009:011. Prerequisite: 009:011 or equivalent. GE: Foreign Language Fourth Level Proficiency.

009:026 Oral Expression in French I 2 s.h.  
Prerequisite: 009:002 or 009:010 or equivalent.

009:029 First-Year Seminar 1-2 s.h.  
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.  
Key moments in the history of relations between the United States and France, from similarities underlying democratic principles to recent divergent worldviews. Taught in English. GE: Humanities.

009:055 Revolutions in 19th-Century France 3 s.h.  
GE: Humanities. Same as 033:055.

009:060 Fashioning France: The Land and Its People 3 s.h.  
The beauty of France; distinctive regional differences, richness, diversity; why France appeals to travelers worldwide.

French, for Undergraduate and Graduate Students

009:105 Third-Year French 3 s.h.  
Development of reading skills in French; composition and review of basic grammar structures. Prerequisite: 009:012 or equivalent.

009:106 Oral Expression in French II 2 s.h.  
Second in a three-course sequence. Pre- or corequisite: 009:012 or equivalent.

009:108 Introduction to French Literature: Seventeenth and Eighteenth Centuries 3 s.h.  
Prerequisite: 009:111 or equivalent.

009:109 Introduction to French Literature: Nineteenth Century 3 s.h.  
Prerequisite: 009:111 or equivalent.

009:110 Introduction to French Literature: Twentieth Century 3 s.h.  
Prerequisite: 009:111 or equivalent.

009:111 Introduction to Reading and Writing in Literature 3 s.h.  
Development of analytical, organizational skills for interpretation of literature; readings in prose, poetry, drama, criticism; emphasis on essay writing. Prerequisite: 009:012 or equivalent.

009:112 French Grammar 3 s.h.  
Study of word forms, sentence patterns for more accurate use of French. Prerequisite: 009:012 or equivalent.

009:113 French Civilization 3 s.h.
Institutions and events from the beginning of French civilization to the Renaissance. Prerequisite: 009:111 or equivalent. GE: Foreign Civilization & Culture.

009:114 French Civilization
From Renaissance to Revolution. Prerequisite: 009:111 or equivalent. GE: Foreign Civilization & Culture.

009:115 Business French
Language of economics and business; practice in business correspondence and communication, active use of business vocabulary. Offered fall semesters. Prerequisite: 009:112 or equivalent or consent of instructor.

009:116 Cinema, Society, and Culture in Twentieth-Century France
French cultural and social history of the 20th century introduced through selected fictional and documentary films of the period. Prerequisite: 009:111 or equivalent.

009:118 Topics in French Studies I
Prerequisite: 009:111 or equivalent.

009:120 French-Speaking Cultures
Features of cultures in which French is spoken; North Africa, Subsaharan Africa, the Indian Ocean, Indochina, the West Indies, Canada, Europe; cinema, music, literature, the arts, the media. Prerequisite: 009:111 or equivalent.

009:124 Study Abroad: Language
Written and spoken French; listening, speaking, reading, writing in cultural contexts. Prerequisite: 009:012 or equivalent.

009:127 Study Abroad: Culture
Geography, history, architecture, painting, music of France; readings, slides, video and audio cassettes, visits to sites of cultural significance. Prerequisite: 009:012 or equivalent.

009:130 Paris and the Art of Urban Life
City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as 01H:157, 033:130.

009:136 Oral Expression in French III
Last in a three-course sequence. Prerequisite: 009:106 or equivalent.

009:144 Tales of Love in French Literature
The problematic of love, politics and poetics of desire; selected works, Middle Ages to 20th century. Taught in English. Prerequisite: 009:111 or consent of instructor.

009:146 Francophone Cinema
Introduction to the cinema of French-speaking countries outside of France; history, production, distribution; issues of colonialism, postcolonial identities, gender, social realism, diasporas, popular culture. Taught in English. Prerequisite: 009:012 or equivalent or consent of instructor.

009:147 French Cinema
Taught in English. Prerequisite: 009:012 or equivalent or consent of instructor. GE: Foreign Civilization & Culture. Same as 048:105.

009:148 Gender and Sexuality in French Cinema
Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Taught in English. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 048:167, 131:167.

009:157 Twentieth-Century Europe in Literature and Film
Introduction to 20th-century Europe through representative literature and film that reflect and critically engage the period's defining moments in social, cultural, and political history; modernity and emergence of modernist aesthetics, World War I, the Great Depression, the Spanish Civil War, struggles between fascism and communism, World War II, existentialism, the Holocaust, rise of postwar consumer society and technocracy, wars of decolonization, political dissidence in Cold War Eastern Europe, student revolts of the 1960s, fall of the Berlin Wall, collapse of the Soviet Union, postcolonial condition that binds Europe to its colonial history. Taught in English. Same as 048:157.
009:161 Topics in French Civilization
Prerequisites: 009:111 and 009:112, or equivalents. 3 s.h.

009:163 Francophone Literature of the African Diaspora
Literatures and cultures of Africa, the Caribbean, and the Indian Ocean analyzed through fiction, essays, films, documentaries. Prerequisites: 009:111 and 009:112, or equivalents, or consent of instructor. 3 s.h.

009:164 Quebecois Literature
Prerequisites: 009:111 and 009:112, or equivalents. 3 s.h.

009:168 Post-Colonial Literature in France
Literatures and cultures of Arabo-French (Beur) and Afro-French immigrations. Prerequisites: 009:111 and 009:112, or equivalents. Same as 048:168. 3 s.h.

009:170 Early Modern French Literature and Culture
Literary representations of social trends in early modern France. Prerequisites: 009:111 and 009:112. 3-4 s.h.

009:178 Topics in French Studies II
French and/or Francophone literature or culture. Prerequisites: 009:111 and 009:112, or equivalents. 3 s.h.

009:180 French Women Writers
Survey of 20th-century French women writers, with emphasis on Simone de Beauvoir; broad range of literary works by writers including de Beauvoir, Colette, Marguerite Yourcenar, Nathalie Sarraute, Marguerite Duras, Sarah Kofman, Annie Ernaux, Christiane Rachefort; French feminist theorists who followed in de Beauvoir’s footsteps, including Helene Cixous, Julia Kristeva, Luce Irigaray. Prerequisite: 009:111 or 131:010. Same as 131:168. 3-4 s.h.

009:186 Twentieth-Century French Poetry
Prerequisites: 009:111 and 009:112, or equivalents. 3-4 s.h.

009:187 Aspects of Poetry
Prerequisites: 009:111 and 009:112, or equivalents. 3 s.h.

009:191 Early Modern Culture
Prerequisites: (for 009:191) 009:111 and 009:112, or equivalents. Same as 048:191. 3 s.h.

009:192 French Classical Literature
Prerequisites: 009:111 and 009:112, or equivalents. 3 s.h.

009:193 French Literature of the Enlightenment
Principal literary genres and key issues from the Enlightenment; aristocratic libertinism of the early 18th century to radical tendencies of the Revolutionary period. Prerequisites: 009:111 and 009:112, or equivalents. 3 s.h.

009:196 Independent Study
Prerequisites: 009:111 and 009:112, or equivalents, or consent of instructor. arr.

009:197 Techniques of Translation
Prerequisite: 009:112 or consent of instructor. Same as 048:197. 3 s.h.

009:198 Honors Research and Thesis
Prerequisites: 009:111 and 009:112, or equivalents, or consent of instructor. 3 s.h.

French, Primarily for Graduate Students

009:205 French for Reading/Research
3 s.h.

009:206 French for Reading/Research
3 s.h.
009:208 Introduction to Graduate Study in French
Expectations, resources, and opportunities of graduate study in French; introduction to course work, development of preprofessional competencies.

009:209 Grammar in Second Language Teaching/Learning

009:210 Comparative Stylistics
Translation from English to French, including literary texts. Same as 048:211.

009:212 Realism and Naturalism
Representative novels of Realist and Naturalist movements, in historical, literary, and theoretical context.

009:215 The Renaissance in France

009:220 Topics in French Studies
Repeatable.

009:222 New Historicisms in France
Theory and practice of historical interpretation developed by the "Annales" historians and in the philosophical discourses of Michel Foucault, Michel de Certeau, other prominent postmodern critics.

009:223 French History in/and Cinema
French cinema’s role in constructing 20th-century discourse on national and cultural identity and in shaping modern France’s historical imagination.

009:224 Modern French Novel

009:225 Literature of Immigration in France
Contemporary literature written by non-European immigrants in France; issues of identity, institutional power, exclusion, displacement; rhetorical strategies used in these decentered texts to open a discursive/subversive space in canonical literary discourse.

009:227 Studies in the Seventeenth Century

009:234 Principles of Teaching and Learning Foreign Languages
Prerequisite: consent of instructor. Same as 013:221, 039:234, 041:234.

009:236 Topics in Second Language Acquisition: Speaking
Theory, pedagogy, research, and assessment in second language speaking. Same as 035:228, 164:221.

009:237 Second Language Acquisition Research and Theory I
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 035:201, 039:200, 164:201, 39J:201.

009:238 Multimedia and Second Language Acquisition
Foreign language multimedia in the context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control, and acquisition of vocabulary, grammar, and culture; multimedia development project. Prerequisite: foreign language teaching methodology course or consent of instructor. Same as 013:253, 035:212, 164:211.

009:239 Advanced CALL Curriculum Development
Advanced instruction in a variety of software and hardware tools for development of multimedia computer-assisted language learning (CALL) courseware; students develop software for a General Education Program or third-year language course in collaboration with course supervisor. Prerequisite: 164:212. Same as 013:254, 035:214, 164:214.

009:240 Studies in Francophone Literatures
Historical, anthropological, comparative approach to Francophone literatures and cultures; Afro/Indo-Caribbean religions in literatures, theoretical and critical discourses, women’s literature and cinema.

**009:260 Critical Theory and Practice**
3 s.h.

**009:277 Thesis**
arr.

**009:279 Independent Study**
arr.

**009:350 Seminar: Comparative Topics**
Comparative topics in literature, theory, media, cultural studies. Same as 048:355.
arr.

**009:355 Seminar**
Repeatable.
3 s.h.

**Italian, Primarily for Undergraduates**

**018:001 Elementary Italian**
4 s.h.
For students who have no knowledge of Italian. Offered fall semesters. GE: Foreign Language First Level Proficiency.

**018:002 Elementary Italian II**
4 s.h.
Offered spring semesters. Prerequisite: 018:001 or equivalent. GE: Foreign Language Second Level Proficiency.

**018:011 Intermediate Italian**
4 s.h.
Offered fall semesters. Prerequisite: 018:002 or equivalent. GE: Foreign Language Second Level Proficiency.

**018:012 Intermediate Italian II**
4 s.h.
Offered spring semesters. Prerequisite: 018:011 or equivalent. GE: Foreign Language Fourth Level Proficiency.

**018:013 Everyday Italian I**
2 s.h.
Offered fall semesters. Prerequisite: 018:002 or 018:103.

**018:014 Everyday Italian II**
2 s.h.
Offered spring semesters. Prerequisite: 018:002 or 018:103 or equivalent.

**018:029 First-Year Seminar**
1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Taught in English. Prerequisite: first- or second-semester standing.

**018:030 Italian for Travelers**
2 s.h.
Basic language skills for tourists; for students with no previous Italian.

**018:040 Topics in Italian**
2 s.h.
Topics in Italian language, culture, and literature; may include Italian cinema, studies of specific Italian cities, thematic approaches to Italian studies.

**018:053 Independent Study**
arr.

**Italian for Undergraduate and Graduate Students**

**018:103 Intensive Elementary Italian**
4-6 s.h.
Offered spring semesters. Prerequisite: two years of another foreign language. GE: Foreign Language Second Level Proficiency.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>018:105</td>
<td>Modern Italian Fiction</td>
<td>3 s.h.</td>
<td>Prerequisite: 018:012.</td>
</tr>
<tr>
<td>018:106</td>
<td>Modern Italian Poetry and Drama</td>
<td>3 s.h.</td>
<td>Continuation of 018:105, but may be taken as independent unit. Prerequisite: 018:012 or equivalent.</td>
</tr>
<tr>
<td>018:111</td>
<td>Advanced Italian</td>
<td>3-4 s.h.</td>
<td>Offered fall semesters. Prerequisite: 018:012 or equivalent.</td>
</tr>
<tr>
<td>018:112</td>
<td>Advanced Italian</td>
<td>3-4 s.h.</td>
<td>Offered spring semesters. Prerequisite: 018:111.</td>
</tr>
<tr>
<td>018:114</td>
<td>Studies in Italian Language</td>
<td>3 s.h.</td>
<td>Prerequisite: 018:112 or equivalent.</td>
</tr>
<tr>
<td>018:119</td>
<td>Medieval Italian Literature</td>
<td>3 s.h.</td>
<td>Prerequisite: 018:012.</td>
</tr>
<tr>
<td>018:120</td>
<td>Medieval and Renaissance Italian Literature</td>
<td>3 s.h.</td>
<td>Continuation of 018:119. Prerequisite: 018:012.</td>
</tr>
<tr>
<td>018:132</td>
<td>Images of Modern Italy</td>
<td>3-4 s.h.</td>
<td>Survey of Italy's history since Unification; diverse aspects of modern Italian culture and society through visual and textural materials. Prerequisite: 018:012 for students earning 4 s.h. GE: Foreign Civilization &amp; Culture, Humanities.</td>
</tr>
<tr>
<td>018:198</td>
<td>Honors Research and Thesis</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

**Italian, Primarily for Graduate Students**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>018:217</td>
<td>Studies in Italian Literature</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>018:279</td>
<td>Independent Study</td>
<td>arr.</td>
<td></td>
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</tbody>
</table>

**Arabic Language and Literature**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>195:050</td>
<td>Topics in Middle East/Muslim World Studies I</td>
<td>3 s.h.</td>
<td>Contemporary cultural questions and debates in the Muslim and Arabic-speaking world. Taught in English.</td>
</tr>
<tr>
<td>195:115</td>
<td>Study Abroad: Language (Elementary)</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>195:120</td>
<td>Formal Spoken Arabic</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Conversational practice with a native speaker;</td>
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<tr>
<td></td>
<td>for students who have completed fourth-semester</td>
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<tr>
<td></td>
<td>Arabic. Prerequisite: 195:102 or 195:112 or</td>
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</tr>
<tr>
<td></td>
<td>equivalent, and non-native or non-heritage speaker</td>
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<td></td>
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<tr>
<td></td>
<td>of Arabic.</td>
<td></td>
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</tr>
<tr>
<td>195:121</td>
<td>Study Abroad: Spoken Moroccan Dialect</td>
<td>2 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction to Moroccan dialect; listening,</td>
<td></td>
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<tr>
<td></td>
<td>speaking. Recommended: some proficiency in</td>
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<tr>
<td></td>
<td>Arabic reading and writing. Prerequisite:</td>
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<tr>
<td></td>
<td>non-native speaker of Arabic; heritage speaker</td>
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<tr>
<td></td>
<td>of Arabic should contact the course supervisor</td>
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<td></td>
<td>for appropriate placement.</td>
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<tr>
<td>195:123</td>
<td>Study Abroad: Language (Intermediate)</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modern Standard Arabic (MSA); speaking, reading,</td>
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<tr>
<td></td>
<td>listening and writing. Prerequisite: non-native</td>
<td></td>
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<tr>
<td></td>
<td>speaker of Arabic; heritage speaker of Arabic</td>
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<td>should contact the course supervisor for</td>
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<td>appropriate placement.</td>
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<td></td>
<td>Recommended: one year of Arabic study.</td>
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<tr>
<td>195:125</td>
<td>Topics in Middle East/Muslim World Studies II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Contemporary cultural questions and debates in</td>
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<td></td>
<td>the Muslim and Arabic-speaking world. Taught in</td>
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<tr>
<td></td>
<td>English.</td>
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<tr>
<td>195:126</td>
<td>Study Abroad: Culture and Society</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to Moroccan culture and society</td>
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<td></td>
<td>through direct observation and interaction;</td>
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<tr>
<td></td>
<td>intensive orientation, cultural exchange</td>
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<tr>
<td></td>
<td>activities, learning excursions outside Fez,</td>
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<tr>
<td></td>
<td>homestay with a Moroccan family.</td>
<td></td>
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<tr>
<td>195:130</td>
<td>Advanced Modern Standard Arabic I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Advanced Arabic grammar and syntax, composition</td>
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<td></td>
<td>writing, formal conversation (similar to</td>
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<td></td>
<td>conversations on Arabic mass media); classical</td>
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<td></td>
<td>Arabic texts, other materials written for persons</td>
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<td>whose first or official language is Arabic.</td>
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<td></td>
<td>Prerequisite: 195:112.</td>
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<tr>
<td>195:131</td>
<td>Advanced Modern Standard Arabic II</td>
<td>3 s.h.</td>
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<td></td>
<td>Continuation of 195:130; advanced Arabic grammar</td>
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<td>and syntax, composition writing, formal</td>
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<td>conversation (similar to conversations on Arabic</td>
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<td>mass media); classical Arabic texts, other</td>
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<td>materials written for persons whose first or</td>
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<td></td>
<td>official language is Arabic. Prerequisite: 195:130</td>
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<tr>
<td>195:133</td>
<td>Study Abroad: Language (Advanced)</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Modern Standard Arabic (MSA); speaking, reading,</td>
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<tr>
<td></td>
<td>listening, and writing. Prerequisite: non-native</td>
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<td></td>
<td>speaker of Arabic; heritage speaker of Arabic</td>
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<td></td>
<td>should contact the course supervisor for</td>
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<td></td>
<td>appropriate placement.</td>
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<tr>
<td></td>
<td>Recommended: two or more years of Arabic</td>
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<tr>
<td></td>
<td>language.</td>
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<tr>
<td>195:153</td>
<td>Independent Study</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Independent study with an instructor of material</td>
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<td></td>
<td>not covered in other regularly offered courses.</td>
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<tr>
<td></td>
<td>Prerequisite: consent of instructor.</td>
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</tbody>
</table>
General Education Program

Web site: http://www.clas.uiowa.edu/students/academic_handbook/vi.shtml

All students entering the College of Liberal Arts and Sciences who wish to earn Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), Bachelor of Liberal Studies (B.L.S.), or Bachelor of Music (B.M.) degrees must complete the requirements of the CLAS General Education Program.

General Education Requirements

There are nine required areas within the General Education Program and 12 different categories of courses. To fulfill the area requirements, students may select from numerous subjects and departments, with all General Education courses providing a foundation in critical thinking, reading, and writing. More advanced General Education courses allow students to pursue a wide range of interests relating to or in addition to their major well into their senior year.

Rhetoric: a minimum of 4-8 s.h.

Foreign Language: fourth-semester proficiency or the departmental equivalent.

Interpretation of Literature: a minimum of 3 s.h. English majors should select an alternate course from the Humanities area to fulfill this requirement.

Historical Perspectives: a minimum of 3 s.h.

Humanities: a minimum of 3 s.h.

Natural Sciences: a minimum of 7 s.h.; must include one lab.

Quantitative or Formal Reasoning: a minimum of 3 s.h.

Social Sciences: a minimum of 3 s.h.

Distributed General Education: at least 6 s.h., with a minimum of 3 s.h. taken from two different categories listed below:

- Cultural Diversity
- Fine Arts
- Foreign Civilization and Culture
- Health and Physical Activity
- Historical Perspectives
- Humanities
- Social Sciences

Academic Policies Pertaining to General Education

Students should be aware of all additional academic policies that pertain to the General Education Program. See "General Education Policies and Other Information" later in this Catalog section.

Note: The University accepts credit by examination for some areas of the General Education Program, including AP, CLEP, and IB credit. Visit the Office of Admissions web site for specific information. Transfer credit also may be used to fulfill some areas. Please consult with the Office of Admissions.

Areas and Course Lists

Rhetoric

Rhetoric courses help students to develop skills in speaking, writing, listening, and critical reading, and to build competence in research, analysis, and argumentation. Because these skills are basic to the rest of a student's study in the College of Liberal Arts and Sciences, students must register for their assigned rhetoric course during their first year at Iowa. All transfer students, regardless of the number of semester hours they transfer, must complete the rhetoric requirement of the General Education Program. The admission degree audit shows The University of Iowa rhetoric requirement that must be completed.
Students required to enroll in English as a Second Language (ESL) classes as a result of their English proficiency evaluation must complete all ESL classes before registration in any rhetoric class. Required ESL courses are prerequisites to rhetoric courses.

RHETORIC COURSE LIST

010:005/033:005 Rhetoric of Scientific Inquiry has been removed from the list of approved courses in the Rhetoric area.

010:001 Rhetoric I 4 s.h.
010:002 Rhetoric II 4 s.h.
010:003 Accelerated Rhetoric 4 s.h.
010:004 Writing and Reading 3 s.h.
010:006 Speaking and Reading 3 s.h.

Foreign Language

Foreign Language courses provide students with speaking, listening, reading, and writing skills in a second language. These courses also provide some knowledge of the culture(s) in which the language is spoken. To fulfill the Foreign Language requirement of the General Education Program, students must:

- complete the fourth-year level of a foreign language in high school; or
- complete the last course in the designated course sequence of an approved foreign language at The University of Iowa, or the equivalent course at another college or university, or during study abroad; or
- pass an achievement test measuring proficiency in a foreign language equivalent to that usually attained after four semesters of college study.

Proficiency Examinations

Students proficient in a language for which they have received no formal instruction (or formal instruction below the fourth-semester level) may validate their proficiency with an examination.

Students with knowledge of Chinese, French, German, ancient Greek, Japanese, Latin, Russian, or Spanish should take one of the University of Iowa placement examinations. These placement tests help students choose appropriate foreign language courses. Students may use the results of the proficiency examination to fulfill the Foreign Language requirement of the General Education Program if their score on the examination is at the level accepted by the department offering the exam.

Students do not earn semester hours by taking these examinations.

WebCape placement tests in French, German, and Spanish require an additional oral evaluation by the department offering the language.

Placement and proficiency examinations in American Sign Language, Arabic, Croatian, Czech, Hindi, Italian, Korean, Polish, Portuguese, Sanskrit, Swahili, and Uzbek are arranged by contacting the appropriate department.

Students proficient in a language not regularly offered at The University of Iowa visit with CLAS Academic Programs & Services to ask about assessment. In some cases, arrangements can be made for a proficiency evaluation, but evaluations are available only for a limited number of languages. Students may fulfill the Foreign Language requirement of the General Education Program through such an evaluation, but such evaluations do not result in earned semester hours counted toward graduation.

Students proficient in a language for which testing is not available must fulfill the Foreign Language requirement of the General Education Program by another method.

GUIDELINES FOR TAKING PROFICIENCY/PLACEMENT EXAMS

Students proficient in more than one language may take the placement exam in each language.

Students who have been enrolled in a University of Iowa course in a particular language past the deadline for adding courses may not take the placement exam in that language.

Ordinarily, students may take a placement exam in a particular language only once. Students may repeat an exam only if they have had a significant language learning experience outside the classroom since they first took the exam.

Students seeking exceptions to these guidelines should consult with the appropriate department for permission to take the proficiency/placement test.

WHEN A STUDENT'S FIRST LANGUAGE IS NOT ENGLISH
Students who completed secondary school in a language other than English, hold non-immigrant visas, and meet the College of Liberal Arts and Sciences English proficiency requirement may use English to fulfill the Foreign Language requirement of the General Education Program. The English proficiency requirement may be satisfied by:

- a score of 600 or above (paper-based) or 280 or above (computer-based) on the Test of English as a Foreign Language (TOEFL); or
- successful completion of required English as a Second Language (ESL) courses as determined by an English proficiency evaluation conducted by the Department of Linguistics; or
- validation of English proficiency by the coordinator of English as a Second Language.

Note: Currently, The University of Iowa also accepts the International English Testing System (IELTS) as certification of English language proficiency for admission of students whose first language is not English; IELTS is accepted as an alternative to TOEFL. IELTS cut-off scores are 6.5 for undergraduate admission and 7.0 for graduate admission, with no subscore lower than 6.0. All students who submit IELTS scores must take the on-campus English Proficiency Evaluation (EPE) prior to their first University of Iowa registration.)

Students who completed secondary school (grades 9-12 or 10-12) in English may not use English to fulfill the Foreign Language requirement of the General Education Program. These students must fulfill the Foreign Language requirement of the General Education Program in another way.

Approved General Education Course Sequences

The College of Liberal Arts and Sciences offers a number of course sequences that can be used to fulfill the Foreign Language requirement of the General Education Program. To avoid duplication or regression, students are advised to consult the appropriate foreign language department before registering.

American Sign Language

Courses in American Sign Language (ASL) are offered by the American Sign Language Program. The following sequence of four courses may be used to fulfill the General Education Foreign Language requirement: 158:011 American Sign Language I, 158:012 American Sign Language II, 158:013 American Sign Language III, and 158:014 American Sign Language IV. Students with previous knowledge of American Sign Language should consult the ASL program for placement.

Arabic

Courses in Arabic are offered by the Department of French and Italian. The following sequence may be used to fulfill the General Education Foreign Language requirement: 195:101 Elementary Modern Standard Arabic I, 195:102 Elementary Modern Standard Arabic II, 195:111 Intermediate Modern Standard Arabic I, and 195:112 Intermediate Modern Standard Arabic II.

Chinese

Courses in Chinese are offered by the Department of Asian and Slavic Languages and Literatures. Students may use various combinations of courses approved for General Education to fulfill the Foreign Language requirement. For students with no knowledge of Chinese, the department recommends 039:008 First-Year Chinese: First Semester, 039:009 First-Year Chinese: Second Semester, 039:105 Second-Year Chinese: First Semester, and 039:106 Second-Year Chinese: Second Semester. Heritage learners and students who have studied Chinese abroad may wish to complete the sequence with 039:107 Accelerated Second-Year Chinese: First Semester and 039:114 Accelerated Second-Year Chinese: Second Semester. Consult the department for more information.

French

Courses in French are offered by the Department of French and Italian. Students may use various combinations of courses approved for General Education to fulfill the Foreign Language requirement. For students with no knowledge of French, the department recommends 009:001 Elementary French I, 009:002 Elementary French II, 009:011 Intermediate French I, and 009:012 Intermediate French II. Students who have previous knowledge of French may begin with 009:010 First-Year French Review, and continue with 009:011 Intermediate French I and 009:012 Intermediate French II; or they may be evaluated as ready for 009:011 Intermediate French I or 009:012 Intermediate French II. Consult the department for appropriate placement.

German

Courses in German are offered by the Department of German. Students may use varied combinations of courses
approved for General Education to fulfill the Foreign Language requirement. For students with no knowledge of German, the department suggests 013:011 Elementary German I, 013:012 Elementary German II, 013:021 Intermediate German I, and 013:022 Intermediate German II. Students with previous knowledge of German may begin with the review course 013:014 First-Year German Review and continue with 013:021 Intermediate German I and 013:022 Intermediate German II; or they may be evaluated as ready for 013:021 Intermediate German I or 013:022 Intermediate German II.

The department also offers accelerated intensive courses, 013:013 Intensive Elementary German and 013:025 Intensive Intermediate German, which may be appropriate for students with strong language learning abilities or experience. The intensive courses may be combined with nonintensive courses to create other sequences that can be used to fulfill the General Education Foreign Language requirement. Consult the Department of German to identify an appropriate course sequence.

**Greek**

Courses in Greek are offered by the Department of Classics. Students with no previous knowledge of Greek should fulfill the General Education Foreign Language requirement by taking 20G:001 Classical and New Testament Greek I, 20G:002 Classical and New Testament Greek II, 20G:011 Second-Year Greek I, and 20G:012 Second-Year Greek II. Students with previous knowledge of Greek should consult the department for appropriate placement.

**Hindi**

Courses in Hindi are offered by the Department of Asian and Slavic Languages and Literature. Students with no previous knowledge of Hindi should fulfill the General Education Foreign Language requirement by taking 039:123 First-Year Hindi: First Semester, 039:124 First-Year Hindi: Second Semester, 039:126 Second-Year Hindi: First Semester, and 039:127 Second-Year Hindi: Second Semester. These courses are open to entering first-year students. Students with knowledge of Hindi should consult the department for appropriate placement.

**Italian**

Courses in Italian are offered by the Department of French and Italian. Students with no previous knowledge of Italian should fulfill the General Education Foreign Language requirement by taking 018:001 Elementary Italian, 018:002 Elementary Italian II, 018:011 Intermediate Italian, and 018:012 Intermediate Italian II. Students who have strong language learning abilities or a background in another romance language may complete the requirement with 018:103 Intensive Elementary Italian, 018:011 Intermediate Italian and 018:012 Intermediate Italian II. Students with previous knowledge of Italian should consult the department for appropriate placement.

**Japanese**


**Latin**


**Portuguese**

Courses in Portuguese are offered by the Department of Spanish and Portuguese. Only one sequence is approved fulfill the General Education Foreign Language requirement: 038:100 Accelerated Elementary Portuguese followed by 038:101 Accelerated Intermediate Portuguese. These courses are open to entering first-year students.
Russian

Courses in Russian are offered by the Department of Asian and Slavic Languages and Literature. Students without previous knowledge of Russian should fulfill the General Education Foreign Language requirement by taking 041:001 First-Year Russian I, 041:002 First-Year Russian II, 041:003 Second-Year Russian I, and 041:004 Second-Year Russian II. Students with knowledge of Russian should consult the program for appropriate placement.

Sanskrit

Courses in Sanskrit are offered by the Department of Asian and Slavic Languages and Literature. Students with no previous knowledge of Sanskrit should fulfill the General Education Foreign Language requirement by taking 039:110 First-Year Sanskrit: First Semester, 039:111 First-Year Sanskrit: Second Semester, 039:112 Second-Year Sanskrit: First Semester, and 039:113 Second-Year Sanskrit: Second Semester. These courses are open to entering first-year students. Students with knowledge of Sanskrit should consult the department for appropriate placement.

Spanish

Courses in Spanish are offered by the Department of Spanish and Portuguese. Students may use varied combinations of courses approved for General Education to fulfill the General Education Foreign Language requirement. For students with no knowledge of Spanish, the department recommends 035:001 Elementary Spanish I, 035:002 Elementary Spanish II, 035:011 Intermediate Spanish I, and 035:012 Intermediate Spanish II. Students with previous knowledge of Spanish may wish to fulfill the requirement with 035:005 Elementary Spanish Review, 035:011 Intermediate Spanish I, and 035:012 Intermediate Spanish II. The accelerated course 035:013 Accelerated Intermediate Spanish, which combines 035:011 Intermediate Spanish I and 035:012 Intermediate Spanish II, may be appropriate for some students. Students with previous knowledge of Spanish should take the Spanish Foreign Language Placement Test to help determine proper placement.

Swahili

Courses in Swahili are offered by the Department of Linguistics. One sequence is approved to fulfill the General Education Foreign Language requirement: 103:125 Elementary Swahili I, 103:126 Elementary Swahili II, 103:127 Intermediate Swahili I, and 103:128 Intermediate Swahili II. These courses are open to entering first-year students. Students with knowledge of Swahili should consult the Department of Linguistics for placement.

OTHER COURSE SEQUENCES

A student who successfully completes a four-semester foreign language sequence that has not been approved for General Education may have the sequence substitute for a proficiency test and thus fulfill the General Education requirement.

The department offering the sequence should contact Graduation Analysis directly on behalf of the student to have the degree evaluation updated to show completion of the General Education Foreign Language requirement. Departments do not need to notify the College of Liberal Arts and Sciences of the update.

Departments that offer foreign language sequences through the fourth semester of proficiency on a regular basis may want to instruct students on this possible General Education credit by noting it on the appropriate ISIS course description. These departments also should pursue the possibility of General Education status for the foreign language sequence as soon as feasible.

Interpretation of Literature

The skills students develop in Rhetoric classes are expanded in Interpretation of Literature courses. Working in small classes, students focus on the major genres of literature (short and long fiction, poetry, drama) and increase their abilities to read and analyze a variety of texts.

All students must complete an Interpretation of Literature course (3 s.h.) or have equivalent transfer credit or credit by examination. Exception: students who major in English may take a course approved in the Humanities area as a substitute for an Interpretation of Literature course.

INTERPRETATION OF LITERATURE COURSE LIST

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>08G:001</td>
<td>The Interpretation of Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:005</td>
<td>Texts and Contexts: French-Speaking World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:007</td>
<td>Nature/Ecology French Philosophy and Fiction</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Historical Perspectives

Courses in Historical Perspectives help students understand a period(s) of the past in its(their) own terms; comprehend the historical processes of change and continuity; sharpen their analytical skills in the evaluation of evidence; and develop their ability to generalize, explain, and interpret historical change.

All students must complete at least 3 s.h. of course work approved in this area. Students may use a second 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.

HISTORICAL PERSPECTIVES COURSE LIST

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:005</td>
<td>Western Art and Culture Before 1400</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:006</td>
<td>Western Art and Culture After 1400</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:016/039:016</td>
<td>Asian Art and Culture</td>
<td></td>
</tr>
<tr>
<td>016:001</td>
<td>Western Civilization I</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>016:002</td>
<td>Western Civilization II</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>016:003</td>
<td>Western Civilization III</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>016:005/039:055</td>
<td>Civilizations of Asia: China</td>
<td></td>
</tr>
<tr>
<td>016:006/039:056</td>
<td>Civilizations of Asia: Japan</td>
<td></td>
</tr>
<tr>
<td>016:007/039:057</td>
<td>Civilizations of Asia: South Asia</td>
<td></td>
</tr>
<tr>
<td>016:011</td>
<td>Issues in Human History: The Vietnam War in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:012</td>
<td>Issues in Human History: Communities and Society in History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:014</td>
<td>Issues in Human History: Europe’s Expansion Overseas</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:015</td>
<td>Issues in Human History: Gender in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:017</td>
<td>Issues: Twentieth-Century Crisis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:020</td>
<td>Issues in Medieval Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:022</td>
<td>Issues: Nature and Society in Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>016:023</td>
<td>Issues in European Politics and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:091</td>
<td>Cultural and Historical Foundations of Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20E:030</td>
<td>Greek Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20E:031</td>
<td>Roman Civilization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:146</td>
<td>History of Music II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>026:033</td>
<td>Philosophy and Human Nature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>026:034</td>
<td>Philosophy and the Just Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:001</td>
<td>Judaism, Christianity, and Islam</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:004/039:064</td>
<td>Living Religions of the East</td>
<td></td>
</tr>
<tr>
<td>032:025/016:035</td>
<td>Medieval Religion and Culture</td>
<td></td>
</tr>
<tr>
<td>032:026/016:036</td>
<td>Modern Religion and Culture</td>
<td></td>
</tr>
<tr>
<td>032:030</td>
<td>Introduction to Islam</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>041:094</td>
<td>Religion and Culture of Slavs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:002</td>
<td>Theatre and Society: Ancients and Moderns</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:003</td>
<td>Theatre and Society: Romantics and Rebels</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:112</td>
<td>History of Theatre and Drama I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:113</td>
<td>History of Theatre and Drama II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:012</td>
<td>Introduction to Prehistory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Humanities

The Humanities category focuses on the ways in which individuals and cultures have interpreted and understood themselves, others, and the world. Humanities courses may explore the nature and meaning of artistic forms (across the spectrum of the fine arts and literature of the past and present), human values and value systems (including current and historical ideas in philosophy and religion), and other expressions of human aspiration, belief, and creation. The courses teach verbal, analytic, perceptual, and imaginative skills needed to interpret and examine culture, community, identity formation, and the human experience.

All students must complete at least 3 s.h. of course work approved in this area. Students may use a second 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.
HUMANITIES COURSE LIST

01H:001 Art and Visual Culture 3 s.h.
01H:002 Arts of Africa 3 s.h.
01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
01H:004 Masterpieces: Art and Cultural Paradigms 3 s.h.
01H:066 Introduction to American Art 3 s.h.
08C:001 Creative Writing Studio Workshop 3 s.h.
08G:002 Biblical and Classical Literature 3 s.h.
08G:003 Medieval and Renaissance Literature 3 s.h.
08G:004 Heroes and Villains 3 s.h.
08G:005/149:005 Literatures of Native American Peoples 3 s.h.
08G:006 Fictions 3 s.h.
08G:007 Poetry 3 s.h.
08G:008 Drama 3 s.h.
08G:009 American Lives 3 s.h.
08G:011 Literature and Sexualities 3 s.h.
08G:012 Comic and Tragic Literature 3 s.h.
08G:014/129:008 Literatures of the African Peoples 3 s.h.
08G:015 Women and Literature 3 s.h.
009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
009:055/033:055 Revolutions in 19th-Century France 3 s.h.
13E:066 Pact with the Devil 3 s.h.
13E:075 Scandinavian Crime Fiction 3 s.h.
13E:080 King Arthur Through the Ages 3 s.h.
13E:085 From the Brothers Grimm to Kafka: The Fantastic and Supernatural in German Literature 3 s.h.
13E:090 Music and the German Imagination 3 s.h.
13E:118 The Third Reich and Literature 3 s.h.
13E:119 German Film 3 s.h.
018:132 Images of Modern Italy 3-4 s.h.
20E:014 Hero, God, Mortal: Literature of Greece 3 s.h.
20E:015 Love and Glory: Literature of Rome 3 s.h.
20E:112/008:125 Classical Mythology 3 s.h.
20E:115/032:164 Greek Religion and Society 3 s.h.
024:102/07S:112/097:115/113/103 Introduction to Museology 3 s.h.
025:013 Concepts and Contexts of Western Music 3 s.h.
025:014 Great Musicians 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
026:061 Introduction to Philosophy 3 s.h.
026:102 Introduction to Ethics 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
032:002 Religion and Society 3 s.h.
032:003 Quest for Human Destiny 3 s.h.
032:006/039:006 Introduction to Buddhism 3 s.h.
032:016 Religion and Liberation 3 s.h.
032:034/129:050 Introduction to African American Religions 3 s.h.
032:051 Religious Thinkers of the West 3 s.h.
032:052/131:060 Women in Islam and the Middle East 3 s.h.
032:111/131:111 Religion and Women 3 s.h.
032:155 Human Rights and Islam 3 s.h.
033:154 Human Nature and the Impact of Science 3 s.h.
035:020 Contemporary Spanish American Narrative 3 s.h.
035:060 Latino/a Literature in the U.S. 3 s.h.
038:020 Contemporary Brazilian Narrative 3 s.h.
039:018/032:008 Asian Humanities: India 3 s.h.
039:019/032:009 Asian Humanities: China 3 s.h.
039:020 Asian Humanities: Japan 3 s.h.
041:093 Slavic Folklore 3 s.h.
045:001 Understanding American Cultures 4 s.h.
048:002 Survey of Film 3 s.h.
Natural Sciences

Courses in the Natural Sciences area explore the scope and major concepts of a scientific discipline. Students learn the attitudes and practices of scientific investigators: logic, precision, experimentation, tentativeness, and objectivity. In courses with a laboratory component, students gain experience in the methods of scientific inquiry.

All students must complete at least 7 s.h. of course work approved in this area, including at least one course with a lab component.

NATURAL SCIENCES COURSE LIST

Effective fall 2007, the Department of Biological Sciences reintroduced 002:040 Biology of the Brain as a 3 s.h. nonlaboratory course without prerequisites and approved for the Natural Sciences area. It is not accepted for the major in biology.

Effective fall 2007, 002:145 Introduction to Neurobiology is no longer approved for the Natural Sciences area, but it continues as a 3 s.h. course for upper-level undergraduates with 002:010 and 002:011 as prerequisites. It is accepted for the major in biology. Students who are taking and who will take 002:145 Introduction to Neurobiology before Fall 2007 and wish to repeat it for a second-grade-only option should enroll in 002:40 Biology of the Brain. Students who take 002:040 Biology of the Brain in fall 2007 or later are charged with duplication if they took 002:145 Introduction to Neurobiology before fall 2007.

Courses with a lab component are noted (lab).

002:001 Introduction to Botany (lab) 4 s.h.
002:002 Introductory Animal Biology (lab) 4 s.h.
002:010 Principles of Biology I (lab) 4 s.h.
002:011 Principles of Biology II (lab) 4 s.h.
002:021 Human Biology (lab) 4 s.h.
002:022 Ecology and Evolution 3 s.h.
002:040 Biology of the Brain 3 s.h.
002:081 Human Genetics in the Twenty-First Century 3 s.h.
002:095 Plants and Human Affairs 2-3 s.h.
004:005 Technology and Society 3 s.h.
004:006 Technology and Society Laboratory (lab) 1 s.h.
004:007 General Chemistry I 3 s.h.
004:008 General Chemistry II 3 s.h.
004:011 Principles of Chemistry I (lab) 4 s.h.
004:012 Principles of Chemistry II (lab) 4 s.h.
004:016 Principles of Chemistry Lab (lab) 2 s.h.
004:018 Chemical Science I 3 s.h.
004:019 Chemical Science II 3 s.h.
004:020 Chemical Science Laboratory (lab) 2 s.h.
012:003 Earth History and Resources (with lab 4 s.h.; without lab 3 s.h.) 3-4 s.h.
012:004 Evolution and the History of Life (with a lab 4 s.h.; without lab 3 s.h.) 3-4 s.h.
012:005 Introduction to Geology (lab) 4 s.h.
012:007 Age of Dinosaurs (lab) 4 s.h.
012:008/159:008 Introduction to Environmental Science (with lab 4 s.h.; without lab 3 s.h.) 3-4 s.h.
012:009/159:009 Introduction to Environmental Sciences Laboratory 1 s.h.
Quantitative or Formal Reasoning

Courses in the Quantitative or Formal Reasoning area help develop analytical skills through the practice of quantitative or formal symbolic reasoning. Courses focus on presentation and evaluation of evidence and argument; understanding the use and misuse of data; and organization of information in quantitative or other formal symbolic systems, including those used in computer science, linguistics, mathematics, philosophy, and statistics.

All students must complete at least 3 s.h. of course work approved in this area. Students may fulfill this requirement of the General Education Program by completing a course that lists an approved course as a prerequisite.

**QUANTITATIVE OR FORMAL REASONING COURSE LIST**

Effective fall 2006, the Department of Mathematics removed 22M:011 from the list of courses approved in the Quantitative or Formal Reasoning area.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>22C:005</td>
<td>Introduction to Computer Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:016</td>
<td>Computer Science I: Fundamentals</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:006</td>
<td>Logic of Arithmetic</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:009</td>
<td>Elementary Functions</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:010</td>
<td>Finite Mathematics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:012</td>
<td>Theory of Arithmetic</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:013</td>
<td>Mathematics for Business</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:015</td>
<td>Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:016</td>
<td>Calculus for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:017</td>
<td>Calculus and Matrix Algebra for Business</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:025</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22S:002</td>
<td>Statistics and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:008</td>
<td>Statistics for Business</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22S:025/07P:025</td>
<td>Elementary Statistics and Inference</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:030</td>
<td>Statistical Methods and Computing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>026:036</td>
<td>Principles of Reasoning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>033:060</td>
<td>Scientific Reasoning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:017</td>
<td>Theory and Practice of Argument</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>103:013</td>
<td>Language and Formal Reasoning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>143:080</td>
<td>Honors Seminar in Quantitative and Formal Reasoning</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Social Sciences

Courses in the Social Sciences area focus on human behavior and the institutions and social systems that shape and are shaped by that behavior. Courses provide an overview of one or more social science disciplines, their theories, and methods.

All students must complete at least 3 s.h. of course work approved in this area. Students may use a second 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.

SOCIAL SCIENCES COURSE LIST

003:117/103:172 Psychology of Language
03 s.h.
003:118/103:176 Language Development
03 s.h.
06E:001 Principles of Microeconomics
04 s.h.
06E:002 Principles of Macroeconomics
04 s.h.
019:090 Social Scientific Foundations of Communication
03 s.h.
019:095 Media and Consumers
03 s.h.
030:001 Introduction to American Politics
03 s.h.
030:030 Introduction to Political Thought and Political Action
03 s.h.
030:041 Introduction to the Politics of Russia and Eurasia
03 s.h.
030:043 Introduction to Politics in the Muslim World
03 s.h.
030:045 Introduction to Comparative Politics
03 s.h.
030:050 Introduction to Political Behavior
03 s.h.
030:060 Introduction to International Relations
03 s.h.
030:061 Introduction to American Foreign Policy
03 s.h.
030:070 Introduction to Political Communication
03 s.h.
030:140 Government and Politics of Europe
03 s.h.
031:001 Elementary Psychology
03 s.h.
031:013 Introduction to Clinical Psychology
03 s.h.
031:014 Introduction to Developmental Science
03 s.h.
031:016 Introduction to Cognitive Psychology
03 s.h.
034:001 Introduction to Sociology Principles
03-4 s.h.
034:002 Social Problems
03-4 s.h.
034:020 Principles of Social Psychology
03-4 s.h.
036:070 Communication and Everyday Life
03 s.h.
036:074 Media and Society
03 s.h.
044:001 Introduction to Human Geography
04 s.h.
044:010 The Contemporary Global System
04 s.h.
044:011 Population Geography
03 s.h.
044:019 Contemporary Environmental Issues
03 s.h.
044:030 The Global Economy
03 s.h.
044:161 African Development
03 s.h.
103:011 Language and Society
03 s.h.
103:055 Languages of the World
03 s.h.
113:003 Introduction to the Study of Culture and Society
03 s.h.
113:010 Anthropology and Contemporary World Problems
03 s.h.
113:014 Language, Culture, and Communication
03 s.h.
113:113 Human Impacts on the Environment
03 s.h.
113:116 Urban Anthropology
03 s.h.
129:060 Introduction to African American Society
03 s.h.
143:060 Honors Seminar in Social Sciences
03 s.h.
03 s.h.
169:070 Perspectives on Leisure and Play
03 s.h.
Cultural Diversity

Cultural Diversity courses foster greater understanding of the diversity of cultures in the United States and provide knowledge and critical understanding of these cultures. Most courses focus on one or more nondominant cultures or peoples of the United States. Some courses include comparative study with cultures outside the United States, but the primary focus is on the U.S. experience.

Students may use 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.

CULTURAL DIVERSITY COURSE LIST

01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
01H:104 American Indian Art 3 s.h.
07B:154 Education, Race, and Ethnicity 2-3 s.h.
07B:180 Human Relations for the Classroom Teacher 3 s.h.
08G:005/149:005 Literatures of Native American Peoples 3 s.h.
08G:011 Literature and Sexualities 3 s.h.
016:040 Perspectives: Diversity in American History 3 s.h.
16A:065/129:065 Introduction to African American History 3 s.h.
16A:112 Mexican American History 3 s.h.
025:080 Jazz Cultures in America and Abroad 3 s.h.
025:141 History of Jazz 3 s.h.
032:016 Religion and Liberation 3 s.h.
032:034/129:050 Introduction to African American Religions 3 s.h.
032:060/149:060 Introduction to Native American Religions 3 s.h.
033:075 Cultural Diversity and Identity 3 s.h.
034:018/131:018 Gender and Society 3-4 s.h.
034:066 Social Inequality 3 s.h.
034:155 Comparative Studies in Race and Ethnicity 3 s.h.
035:060 Latino/a Literature in the U.S. 3 s.h.
035:143/048:196 Cuban American Literature and Culture 3 s.h.
045:001 Understanding American Cultures 4 s.h.
103:150/113:173 Language and Gender 3 s.h.
113:110/149:110/045:105 Native Peoples of North America 3 s.h.
129:060 Introduction to African American Society 3 s.h.
129:061/045:030 Introduction to African American Culture 3 s.h.
129:062 Foundations in African American Studies 3 s.h.
129:122/019:165 African Americans and the Media 3 s.h.
131:010/154:010 Introduction to Gender, Women's, and Sexuality Studies 3 s.h.
131:055 Gender, Race, and Class in the U.S. 3 s.h.
149:049/045:049 Introduction to American Indian and Native Studies 3 s.h.

Fine Arts

Fine Arts courses provide students with knowledge of the history, theory, and appreciation of varied disciplines in the creative arts. Courses also may provide students with studio, performance, and production experiences.

Students may use 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.

FINE ARTS COURSE LIST

01B:001 Elements of Art 3 s.h.
01B:090 Elements of Sculpture 3 s.h.
01C:060 Ceramics I 3 s.h.
01H:001 Art and Visual Culture 3 s.h.
01H:002 Arts of Africa 3 s.h.
01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
01H:004 Masterpieces: Art and Cultural Paradigms 3 s.h.
Foreign Civilization and Culture

Foreign Civilization and Culture courses provide students with knowledge about one or more foreign civilizations, cultures, or societies outside of the United States. Courses are designed to stimulate students' interest in further study of foreign civilizations, cultures, and societies and to foster international and intercultural understanding.

Students may use 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.

FOREIGN CIVILIZATION AND CULTURE COURSE LIST

01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:016/039:016 Asian Art and Culture 3 s.h.
01H:066 Introduction to American Art 3 s.h.
01N:015 Undergraduate Sculpture I 3 s.h.
08C:001 Creative Writing Studio Workshop 3 s.h.
08N:020 Introduction to Creative Nonfiction 3 s.h.
025:013 Concepts and Contexts of Western Music 3 s.h.
025:014 Great Musicians 3 s.h.
025:059 Performance Instruction for Nonmajors 1 s.h.
025:080 Jazz Cultures in America and Abroad 3 s.h.
025:082 Group Piano I: Non-Music Majors 1 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
025:144 History of Music I 3 s.h.
025:146 History of Music II 3 s.h.
049:001 Art of the Theatre 3 s.h.
049:002 Theatre and Society: Ancients and Moderns 3 s.h.
049:003 Theatre and Society: Romantics and Rebels 3 s.h.
049:020 Basic Acting 3 s.h.
049:062 Playwriting I 3 s.h.
049:112 History of Theatre and Drama I 3 s.h.
049:113 History of Theatre and Drama II 3 s.h.
137:001 Beginning Tap 1-2 s.h.
137:002 Beginning Jazz 1-2 s.h.
137:003 Beginning Ballet 1-2 s.h.
137:004 Beginning Modern Dance 1-2 s.h.
137:011 Continuing Tap 1-2 s.h.
137:012 Continuing Jazz 1-2 s.h.
137:013 Continuing Ballet 1-2 s.h.
137:014 Continuing Modern Dance 1-2 s.h.
137:022 Intermediate Jazz 1-2 s.h.
137:023 Intermediate Ballet 1-2 s.h.
137:024 Intermediate Modern 1-2 s.h.
137:080/188:080 Dance and Society 3 s.h.
137:103 Major Ballet I 1-3 s.h.
137:104 Major Modern Dance I 1-3 s.h.
137:106 Dance Performance 0-1 s.h.
137:113 Major Ballet II 1-3 s.h.
137:114 Major Modern Dance II 1-3 s.h.
137:123 Major Ballet III 1-3 s.h.
137:124 Major Modern Dance III 1-3 s.h.

Foreign Civilization and Culture courses provide students with knowledge about one or more foreign civilizations, cultures, or societies outside of the United States. Courses are designed to stimulate students' interest in further study of foreign civilizations, cultures, and societies and to foster international and intercultural understanding.

Students may use 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education requirement of the General Education Program.

FOREIGN CIVILIZATION AND CULTURE COURSE LIST

01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:008 Themes in Global Art 3 s.h.
01H:016/039:016 Asian Art and Culture 3 s.h.
08G:014/129:008 Literatures of the African Peoples 3 s.h.
009:113 French Civilization 3 s.h.
009:114 French Civilization 3 s.h.
Health and Physical Activity

Health and Physical Activity courses help students acquire knowledge and skills that are conducive to good health and well-being.

Students may use 3 s.h. of course work approved in this area to partially fulfill the Distributed General Education Program.
HEALTH AND PHYSICAL ACTIVITY COURSE LIST

Courses with prefix 22S meet for eight weeks and are graded satisfactory/fail only. In order to remove incompletes or use the second-grade-only option, students must complete or retake the same activity or sport at the same level, regardless of when the course was originally taken.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>028:020</td>
<td>Alcohol and Your College Experience</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>028:021</td>
<td>Tobacco and Your College Experience</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>028:022</td>
<td>Resiliency and Your College Experience</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>028:036</td>
<td>Physical Activity Through the Life Span</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>028:174</td>
<td>Understanding Stress and Coping</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>28S:006</td>
<td>Core Strengthening</td>
<td>1 s.h.</td>
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<tr>
<td>28S:007</td>
<td>Aerobics: Low Impact</td>
<td>1 s.h.</td>
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<tr>
<td>28S:009</td>
<td>Aquatic Exercise</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28S:011</td>
<td>Badminton I</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28S:020</td>
<td>Fitness Walking</td>
<td>1 s.h.</td>
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<tr>
<td>28S:021</td>
<td>Flexibility</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28S:023</td>
<td>Golf</td>
<td>1 s.h.</td>
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<tr>
<td>28S:025</td>
<td>Hatha Yoga</td>
<td>1 s.h.</td>
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<tr>
<td>28S:029</td>
<td>Jogging I: Beginners</td>
<td>1 s.h.</td>
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<tr>
<td>28S:030</td>
<td>Jogging II</td>
<td>1 s.h.</td>
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<tr>
<td>28S:031</td>
<td>Karate I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:033</td>
<td>Kick Boxing I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:037</td>
<td>Lap Swimming I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:038</td>
<td>Lap Swimming II</td>
<td>1 s.h.</td>
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<tr>
<td>28S:042</td>
<td>Personal Fitness</td>
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<td>28S:043</td>
<td>Pilates</td>
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<td>28S:045</td>
<td>Racquetball I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:047</td>
<td>Relaxation Techniques</td>
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<tr>
<td>28S:049</td>
<td>Sand Volleyball</td>
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<tr>
<td>28S:052</td>
<td>Self Defense</td>
<td>1 s.h.</td>
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<tr>
<td>28S:053</td>
<td>Slow-Pitch Softball I</td>
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<td>28S:055</td>
<td>Soccer I: Outdoor</td>
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<tr>
<td>28S:056</td>
<td>Soccer II: Outdoor</td>
<td>1 s.h.</td>
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<tr>
<td>28S:057</td>
<td>Soccer: Indoor</td>
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<tr>
<td>28S:058</td>
<td>Speed Walking</td>
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<td>28S:059</td>
<td>Spinning</td>
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<td>Resistance Training</td>
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<td>28S:063</td>
<td>Swimming I</td>
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<tr>
<td>28S:064</td>
<td>Swimming II</td>
<td>1 s.h.</td>
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<td>28S:066</td>
<td>Table Tennis</td>
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<td>28S:071</td>
<td>Tennis I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:075</td>
<td>Ultimate Frisbee</td>
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<tr>
<td>28S:077</td>
<td>Volleyball I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:078</td>
<td>Volleyball II</td>
<td>1 s.h.</td>
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<tr>
<td>28S:081</td>
<td>Weight Training I</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>28S:082</td>
<td>Weight Training II</td>
<td>1 s.h.</td>
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<tr>
<td>169:045</td>
<td>Health for Living</td>
<td>3 s.h.</td>
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</table>

General Education Policies and Other Information

P/N, S/F, S/U Graded Course Work

Students may not choose the pass/nonpass (P/N) grading option for courses they wish to use to complete the General Education Program. Courses approved for General Education may be taken P/N only when they are to be used as elective semester hours.

Only under special circumstances will courses approved for S/F or S/U grading be approved for General Education. The Educational Policy Committee and the General Education Curriculum Committee must approve S/F or S/U grading
for a course approved for General Education.

(See more information on P/N and S/F or S/U in the Grading section of the Student Academic Handbook.)

Majors, Minors, Certificates, and the General Education Program

Students may use courses approved for General Education that are offered by their major departments to complete the General Education Program, and they may use the same course to satisfy a requirement of the major and to complete the General Education Program. Students may use course work they will apply toward earning a minor to complete the General Education Program. Course work used to complete a certificate program also may be used to complete the General Education Program. However, see "No More That Three Courses from One Department" below.

No More Than Three Courses from One Department

Students may use no more than three courses from any one department in completing the General Education Program. Courses taken to fulfill the foreign language requirement of the General Education Program are excluded from this rule.

Repeatable Courses

Courses that may be repeated for credit may be approved in any General Education area. Students may use more than one repeatable course in completing the General Education Program; however, students may use only 3 s. h. of credit from any one repeatable course in completing the General Education Program.

Courses Approved in More Than One Area

A course may be approved in more than one General Education area. Students may use a course to fulfill any requirement of the General Education Program for which it is approved, but may not use a single course in more than one area in completing the General Education Program.

Courses Approved for Honors Credit

Students who are admitted as honors students or who join the Honors Program may enroll in special honors sections of courses approved for General Education. The Honors Program also offers some honors seminars that are approved for General Education, which students may use to complete the General Education Program.

Courses in Common

Entering first-year students may enroll in Courses in Common, a program that offers the opportunity to take three courses approved for General Education with the same group of students.

Students with Disabilities

Students with documented learning disabilities or physical disabilities may need accommodation in order to complete the General Education Program. Accommodations are arranged by Student Disability Services in consultation with instructors, departments, and CLAS Academic Programs & Services. Please visit with Student Disability Services as soon as acceptance of admission to Iowa has been made.

Transfer Courses, Credit by Examination, and the General Education Program

Students may use transfer course work and credit earned through examinations to complete the General Education Program. Transfer credit is evaluated by the Office of Admissions, and courses accepted for completion of the General Education Program are shown on the degree evaluation.

Students may use credit earned by examination, including Advanced Placement Program (AP), College Level Examination Program (CLEP), and International Baccalaureate (IB) tests to complete the General Education Program. For AP, CLEP, and IB exam equivalencies, see Credit by Exam on the Office of Admissions web site.

The University's Foreign Language Placement Test may be used to fulfill the foreign language requirement of the General Education Program.

Students with Degrees from Two-Year Institutions

Students who receive degrees from two year institutions participating in articulation agreements with The University of Iowa are considered to have satisfied all requirements of the General Education Program, except foreign language, if
the program of study for which the degree was awarded includes the following:

- a minimum of 60 s.h. (90 quarter hours) of credit acceptable toward graduation (mathematics courses comparable to 22M:001 Basic Algebra I, 22M:002 Basic Algebra II, and 22M:003 Basic Geometry are not accepted toward graduation); and
- completion of an agreed-upon group of courses; and
- a g.p.a. of at least 2.00.

Representatives from the cooperating institutions and the Regents universities meet periodically to review the provisions of the articulation agreements.

For more information about transfer policies and General Education Program requirements, contact the Office of Admissions.
Geography

Geography is concerned with place and environment and the ongoing processes of change within and between social and physical systems. Geography's importance to scholarly inquiry is rooted in the complexity of the social and environmental problems with which the science deals. Three concepts at the core of the discipline--space, place, and scale--provide theoretical constructs and methodological tools for a science that investigates the complex character of social and environmental phenomena.

Geographers examine issues such as distribution and consumption of natural resources, air and water quality, climate changes and ecosystem dynamics, growth and development of urban areas, population dynamics, politics and practice of international development, and social justice. They view society and the environment as a physical/social/cultural system. They apply uniquely geographical perspectives and tools, as well as knowledge from other social and scientific disciplines, to analyze the emergent properties of these systems.

Department of Geography graduates find employment opportunities in government, nongovernmental organizations, and business. For example, many geographers are employed in resource management, urban and regional development, site selection, and market area analysis. They analyze problems in the distribution and interactions among physical, ecological, social, and political systems.

Geography students acquire skills in computer-based cartography and geographic information systems (GIS) software used to investigate and solve many environmental and social problems. Opportunities for graduates with GIS training are growing rapidly in both private and governmental organizations.

The geography faculty has developed an undergraduate instructional program that serves students majoring or minoring in geography as well as students in other disciplines who are interested in taking geography courses as part of a liberal education. Courses in geography are commonly required of students preparing to teach at the elementary and secondary school levels and those who want to pursue careers in urban and regional planning. They also provide a background for many related professions, including law, health care, environmental or transportation engineering, and international business.

The University's Geographic Information System Instructional Lab (GISIL) is located in the Department of Geography; see "Facilities, Resources" later in this Catalog section.

The department also participates in the University's internship program for students; see "Internships" later in this Catalog section.

Undergraduate Programs

The department offers a Bachelor of Science, a Bachelor of Arts, and a minor in geography.

The department participates in a number of University interdisciplinary programs that have international, area studies, urban, or environmental components. Undergraduate students have access to the Geographic Information System Instructional Lab for GIS instruction and research.

Bachelor of Science, Bachelor of Arts

The Bachelor of Science in geography requires a minimum of 120 s.h., including 46 s.h. of work for the major. The Bachelor of Arts in geography requires a total of 120 s.h., including 38 s.h. of work for the major. Either program is appropriate preparation for advanced training or careers in geography. Students with strong interest in quantitative analysis and model building should pursue the B.S. and are encouraged to master an appropriate computer programming language.

All students take a common set of foundation courses and complete the requirements for one of three tracks: geography and social change, environmental studies, or geographic information science. B.S. students take additional mathematics course work.

Students must complete the College of Liberal Arts and Sciences General Education Program.
Transfer students majoring in geography must earn a minimum of 15 s.h. for the major in residence at The University of Iowa. Consistent with the CLAS maximum hours rule, students may count no more than 50 s.h. earned in their major department toward graduation.

Common Requirements

All geography majors must complete the following courses.

All of these:

- 044:001 Introduction to Human Geography 4 s.h.
- 044:003 Introduction to Earth Systems Science 4 s.h.
- 044:005 Foundations of GIS 3 s.h.

One of these, in addition to any course required to fulfill a track requirement:

- 044:010 The Contemporary Global System 4 s.h.
- 044:011 Population Geography 3 s.h.
- 044:015 Introduction to Political Geography 3 s.h.
- 044:019 Contemporary Environmental Issues 3 s.h.
- 044:030 The Global Economy 3 s.h.
- 044:035 World Cities 3 s.h.

One of these:

- 044:109 Introduction to Geographic Visualization 3 s.h.
- 044:110 GIS for Environmental Studies: Introduction 3 s.h.
- 044:112 Mapping American Cities and Regions 3 s.h.
- 044:180 Field Methods in Physical Geography 3 s.h.
- 044:181 Field Methods: Mapping and Mobile Computing 3 s.h.

One of these:

- 044:150 Senior Project Seminar 3 s.h.
- 044:151 Senior Thesis 3 s.h.

Statistics for the Bachelor of Arts

Bachelor of Arts students must complete a minimum of 3 s.h. in statistics by taking one of the following courses or a statistics course equivalent to or numbered above one of these.

- 07P:143/22S:102 Introduction to Statistical Methods 3 s.h.
- 22S:008 Statistics for Business 4 s.h.
- 22S:025/07P:025 Elementary Statistics and Inference 3 s.h.
- 22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- 22S:101 Biostatistics 3 s.h.
- 22S:130 Introduction to Mathematical Statistics I 3 s.h.
- 22S:131 Introduction to Mathematical Statistics II 3 s.h.

Statistics for the Bachelor of Science

Bachelor of Science students must complete a minimum of 3 s.h. in statistics by taking one of the following courses or a statistics course equivalent to or numbered above one of these.

- 07P:143/22S:102 Introduction to Statistical Methods 3 s.h.
- 22S:130 Introduction to Mathematical Statistics I 3 s.h.
- 22S:131 Introduction to Mathematical Statistics II 3 s.h.

Additional Bachelor of Science Requirement

Bachelor of Science students must satisfy a mathematics requirement consisting of one of the following sequences.

- 22M:015-22M:016 Mathematics for the Biological Sciences - Calculus for the Biological Sciences 8 s.h.
Tracks

All geography majors must complete one of the three tracks described below: geography and social change, environmental studies, or geographic information science. Students should pay close attention to prerequisites for the upper-level courses in each track so that they can develop a study plan that allows them to complete their major in a timely way. Students in the environmental studies or geography and social change tracks who wish to gain additional experience in theory and application of geographic information systems (GIS) should take 044:113 Principles of Geographical Information Systems and at least an additional 6 s.h. in GIS-based courses offered by the Department of Geography.

GEOMETRY AND SOCIAL CHANGE TRACK

The geography and social change track is designed for students preparing for positions in government, nongovernment organizations, international development agencies, and business. It also provides preparation for graduate study in geography or planning, or for professional programs such as law, business, or policy analysis. The track provides an understanding of increasing globalization, including processes of urban and regional development or underdevelopment; the roles of elites, classes, institutions, and social movements; the role of the natural environment in effecting social change in different parts of the world; and the processes through which policy decisions are reached. Course work in the track covers social and economic theories of location and regional formation, methods of spatial analysis and geographic modeling, global and regional political economy, and theories of community conflict and social change.

Students develop requisite skills in quantitative analysis and the development, management, and application of geographic information systems and computer methods. They have opportunities to work on applied problems, such as assessing sites for their growth potential, identifying the best locations for service facilities, evaluating the impact of major projects, and forecasting the populations of small areas. The geography and social change track also provides opportunities for students interested in international development to examine competing theories intended to explain international and regional inequalities, and to investigate and evaluate the patterns and practice of development worldwide.

In addition to satisfying the common requirements for all geography majors, students in the geography and social change track must complete the following.

044:010 The Contemporary Global System 4 s.h.
Upper-level geography courses 11 s.h.

Students choose the upper-level courses (11 s.h.) in consultation with their advisors. They may not count 044:150 Senior Project Seminar or the independent study courses 044:151 Senior Thesis, 044:195 Undergraduate Research, and 044:199 Honors Thesis toward this requirement. Students in the geography and social change track who wish to gain additional experience in theory and application of geographic information systems (GIS) should take 044:113 Principles of Geographical Information Systems and at least an additional 6 s.h. in GIS-based geography courses.

The following upper-level courses are recommended.

044:104 Environment and Development 3 s.h.
044:131 Geography of Health 2-3 s.h.
044:133 Transportation Economics 3 s.h.
044:135 Urban Geography 3 s.h.
044:137 Health and Environment: GIS Applications 3 s.h.
044:139 Spatial Analysis and Location Models 3 s.h.
044:164 The Middle East 3 s.h.
044:170 Geography of Justice 3 s.h.
044:177 Environmental Justice 3 s.h.
044:178 Consequences of Global Environmental Change 3 s.h.
044:181 Field Methods: Mapping and Mobile Computing (a course chosen to fulfill one requirement cannot be used to fulfill a second) 3 s.h.
044:194 Geographic Perspectives on Development 3 s.h.
ENVIRONMENTAL STUDIES TRACK

The environmental studies track is designed for students interested in the interrelationships among social and natural processes that affect the environment. The track prepares students for careers or pursuit of personal interests in resource management, physical geography, climatology, environmental policy or law, global environmental change, sustainable development, or other complex environmental issues. Graduates may find employment in an environmental profession such as landscape ecology or climatology; environmental planning and regulation; or environmental law, policy, and politics.

The environmental studies track offers training in field observation, remote sensing, geographical information systems, quantitative analysis/computing, and cartographic representation. It also provides a sound foundation or graduate or professional-level studies in the natural or social aspects of the environment.

In addition to satisfying the common requirements for all geography majors, students in environmental studies track must complete the following.

044:019 Contemporary Environmental Issues 3 s.h.
Upper-level geography courses 12 s.h.

Students choose the upper-level courses (12 s.h.) in consultation with their advisors. They may not count 044:150 Senior Project Seminar or the independent study courses 044:151 Senior Thesis, 044:195 Undergraduate Research, and 044:199 Honors Thesis toward this requirement. Students in the environmental studies track who wish to gain additional experience in theory and application of geographic information systems (GIS) should take 044:110 GIS for Environmental Studies: Introduction or 044:128 GIS for Environmental Studies: Applications, and at least an additional 6 s.h. in GIS-based geography courses.

The following upper-level courses are recommended.

044:101 Climatology 3 s.h.
044:103 Biogeography 3 s.h.
044:104 Environment and Development 3 s.h.
044:105 Introduction to Environmental Remote Sensing 3 s.h.
044:123 Landscape Ecology 3 s.h.
044:125 Environmental Impact Analysis 4 s.h.
044:126 Wetlands: Function, Geography, and Management 3 s.h.
044:127 Environmental Quality: Science, Technology, and Policy 3 s.h.
044:128 GIS for Environmental Studies: Applications 3 s.h.
044:131 Geography of Health 2-3 s.h.
044:137 Health and Environment: GIS Applications 3 s.h.
044:141 Introduction to Geographic Databases 3 s.h.
044:145 Advanced Geographic Remote Sensing 4 s.h.
044:170 Geography of Justice 3 s.h.
044:178 Consequences of Global Environmental Change 3 s.h.
044:180 Field Methods in Physical Geography (a course chosen to fulfill one requirement cannot be used to fulfill a second) 2-4 s.h.

GEOGRAPHIC INFORMATION SCIENCE TRACK

The geographic information science track is designed for students preparing for positions in government agencies, nongovernment organizations, international development agencies, and business. It also provides preparation for graduate study in geography, planning, and other disciplines. The track focuses on the design, implementation, and use of geographic information systems. Courses address how geographic data are acquired, stored, accessed, displayed, managed, and analyzed.

Students in the geographic information science track learn to address problems involved in modeling environmental systems, identifying the best locations for service facilities, assessing environmental impacts, and forecasting the populations of small areas. They use the department's Geographic Information Systems Instructional Lab (GISIL) extensively to develop expertise in using GIS software.

Course work in the track covers methods of spatial analysis and geographical modeling and involves database management and computer programming.
In addition to the common requirements for all geography majors, students in the geographic information science track must complete the following.

22C:005 Introduction to Computer Science  
3 s.h.

or

22C:016 Computer Science I: Fundamentals  
4 s.h.

Upper-level geography courses  
11 s.h.

Students choose the upper-level courses (11 s.h.) in consultation with their advisors. They may not count 044:150 Senior Project Seminar or the independent study courses 044:151 Senior Thesis, 044:195 Undergraduate Research, and 044:199 Honors Thesis toward this requirement. Students in the GIScience track are encouraged to add breadth to their degree by taking additional upper-level courses in the department. Students interested in the application of GIS to environmental issues should select courses from the department’s environmental studies area; those interested in socioeconomic issues should select courses from the department’s geography and social change area.

The following upper-level courses are recommended.

044:105 Introduction to Environmental Remote Sensing  
3 s.h.

044:109 Introduction to Geographic Visualization  
3 s.h.

044:110 GIS for Environmental Studies: Introduction  
3 s.h.

044:112 Mapping American Cities and Regions  
3 s.h.

044:113 Principles of Geographical Information Systems  
3 s.h.

044:125 Environmental Impact Analysis  
4 s.h.

044:127 Environmental Quality: Science, Technology, and Policy  
3 s.h.

044:128 GIS for Environmental Studies: Applications  
3 s.h.

044:131 Geography of Health  
1-3 s.h.

044:137 Health and Environment: GIS Applications  
3 s.h.

044:139 Spatial Analysis and Location Models  
3 s.h.

044:141 Introduction to Geographic Databases  
3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

**Bachelor of Arts**

The B.A. degree requires 38 s.h. in the major.

**Before the third semester begins:** one of the introductory courses in the major and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** five courses in the major and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** 11 courses in the major and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** 14 courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Bachelor of Science**

The B.S. degree requires 46 s.h. in the major.

**Before the third semester begins:** two of the introductory courses in the major and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** six courses in the major and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** 12 courses in the major and at least three-quarters of the semester hours required for graduation
Before the eighth semester begins: 15 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Honors in geography is for students of superior ability who want to pursue studies beyond the typical undergraduate level. To graduate with honors, students must become a member of the University of Iowa Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). They must be admitted to the honors program in geography by the first semester of the senior year and must maintain a g.p.a. of at least 3.33 in geography. They also must prepare and present an honors thesis, which consists of original research under the direction of a faculty member. The thesis is reviewed by a three-member faculty committee.

Students complete their thesis by taking 044:199 Honors Thesis. The senior course 044:150 Senior Project Seminar may be substituted for 044:199 Honors Thesis, as long as the student continues work on the thesis under the direction of a faculty member.

Minor

The minor in geography requires a minimum of 15 s.h. in geography courses, including 12 s.h. in 100-level courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students are encouraged to concentrate their course work in tracks—geography and social change, environmental studies, or geographic information science (see "Tracks" above). Those who wish assistance in selecting courses may contact the department secretary to request assignment of a minor advisor.

Courses for Nonmajors

Students in the College of Liberal Arts and Sciences as well as other academic units at the University may find geography courses useful to their own study programs. The beginning-level courses 044:001 Introduction to Human Geography, 044:011 Population Geography, 044:019 Contemporary Environmental Issues, and 044:030 The Global Economy are approved for the social sciences component of the College of Liberal Arts and Sciences General Education Program; 044:010 The Contemporary Global System and 044:161 African Development are approved for the social sciences and foreign civilization and culture components of the General Education Program; and 044:003 Introduction to Earth Systems Science is approved for the natural sciences component of the General Education Program. These courses serve as part of a liberal education.

Other courses may be taken as electives, including 044:015 Introduction to Political Geography and 044:035 World Cities.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in geography. The graduate programs focus on investigating the environmental consequences of human decisions on local, regional, and global scales.

Geographical information science and the theories and models of environmental and social sciences are central to the department's studies. Within this broad domain, the department is developing strengths in environmental justice, environmental modeling, land use and its environmental consequences, health geography, and information technology and development.

The M.A. and Ph.D. prepare students to carry on creative and productive research in selected areas of geography. University of Iowa graduates hold positions on college and university faculties, in private research organizations, and in business and government.

The department provides opportunities for graduate students to gain practical teaching experience through service as departmental teaching assistants or graduate instructors.

Graduate students present research papers at conferences and have regularly won awards. Students are involved in faculty research that leads to coauthored publications; they also publish their own. Graduate students compete successfully for intramural and extramural funding for graduate education and research.

Master of Arts

The Master of Arts in geography requires a minimum of 30 s.h. of graduate credit and is designed to be completed in four semesters. However, students earn more than the required credit in completing the degree, using the additional work to increase their breadth of knowledge in geography and to tailor their study programs to their individual interests.
A maximum of 6 s.h. of thesis credit may be applied toward the degree. Students may complete an M.A. specialization in geographic information science by taking specific course work.

Graduate students demonstrate competence by completing appropriate course work; and completing an M.A. exam, or completing and defending an M.A. thesis, or completing the Ph.D. comprehensive exams.

For detailed information about M.A. requirements, see the Manual for Graduate Degree Requirements, Department of Geography; contact the Department of Geography.

Doctor of Philosophy

The Doctor of Philosophy in geography requires 72 s.h. of graduate credit and is designed to be completed in four or five years. The degree prepares students for college and university teaching and for advanced research. It provides study programs that lead to broad knowledge of a field of geography and its literature and to special expertise in a subfield.

Students can enter the Ph.D. program upon completing an undergraduate degree or with advanced standing corresponding to previous graduate education.

All Ph.D. students take the following courses. They take 044:350 Geography Colloquium (1 s.h.) each semester in residence.

044:210 Fundamentals of Geography 3 s.h.
044:211 Research and Writing in Geography 3 s.h.
044:350 Geography Colloquium (taken each semester) 1 s.h.
Two courses in geography numbered above 044:200 6 s.h.
Two research seminars chosen from 044:315 through 044:319 (3 s.h. each) 6 s.h.

Before students can be admitted to candidacy for the Ph.D., they must submit an original research paper to a faculty committee for approval. Students who complete an M.A. or M.S. thesis can submit it to fulfill this requirement. Before taking the comprehensive examination, which consists of both written and oral components, each student must submit an area review paper to his or her Ph.D. committee. This paper, which must be approved by the student's Ph.D. advisor, consists of a critical review of research in the student's concentration area.

The comprehensive examination covers the student's concentration area and his or her general field in the discipline. After obtaining the dissertation supervisor's approval, the student submits a dissertation proposal to the dissertation committee for critical comments and approval. The student then must complete and defend the dissertation.

For detailed information about Ph.D. requirements, see the Manual for Graduate Degree Requirements, Department of Geography; contact the Department of Geography.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

A bachelor's degree in geography is not required for admission to graduate study in geography, but applicants must have an undergraduate background relevant to the field. Strength in social or environmental science and interest in exploring the regional and spatial perspectives that characterize modern geography are important in admission decisions. Depending on their prior training, graduate students may be required to take courses that are prerequisites for course work in their chosen area of graduate study; credit earned in prerequisites does not count toward the graduate degree.

Application materials include an undergraduate transcript with grade-point average, scores on the Graduate Record Examination (GRE) General Test, three letters of recommendation, and an essay in which the applicant states his or her reasons for wanting to study geography at The University of Iowa.

Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL). Their scores must be sent to the University's Office of Admissions.

New graduate students whose first language is not English are required to take the Speaking Proficiency English Assessment Kit (SPEAK) test when they arrive at the University; eventually they take the English Language Performance Test (ELPT). Students must be fully certified by the ELPT before they begin their fourth semester in order to be considered for funding in succeeding semesters. Students who do not pass the SPEAK test and ELPT are required to take Teaching Assistant Preparation in English (TAPE) courses until they have achieved proficiency in spoken English.

Financial Support
A number of graduate teaching and research assistantships are available. In addition, outstanding applicants and underrepresented minorities are eligible for several fellowships. Awards are based on merit. In making awards, the department pays particular attention to grade-point average, especially for the junior and senior years; score on the Graduate Record Examination (GRE) General Test; letters of recommendation; and fit of the student's objectives with department specializations. Applications for graduate appointments must be received by February 1. Applications for fellowships are due by January 15.

Internships

The Department of Geography is a participant in the University's internship program, which provides opportunities for both undergraduate and graduate students to participate in paid and unpaid activities related to their academic programs. The Pomerantz Career Center works with students to develop appropriate internships.

Facilities, Resources

The department houses three geographic information computational laboratories, which support a variety of GIS software packages, including the latest software from ESRI (ArcGIS) and Erdas (Imagine).

The University's Geographic Information Systems Instructional Lab (GISIL) is located in the Department of Geography. The lab is a center for teaching GIS as well as a place where students conduct geographic and GIS-related research. It is equipped with 20 networked student workstations, instructional support technology (e.g., CRT projection), and a suite of peripherals.

Environmental modeling and GIS research laboratories contain state-of-the-art machines. The department provides Windows and Linux platforms, digitizers, scanners, plotters, and printers. Projects requiring massive storage have access to the advanced GIS and modeling facility in the Center for Global and Regional Environmental Research. The University of Iowa is a charter member of Internet2, with a high-performance network link to the Department of Geography. The University also is a member of the University Consortium on Geographic Information Science.

To aid studies of water resources and physical geography, the department has a laboratory for analysis of vegetation, sediment, soil, water quality, and tree rings, and a variety of field equipment, including portable meteorological stations and data loggers.

Faculty and graduate students participate in multidisciplinary working groups through the University's Program in Applied Mathematical and Computational Sciences, Center for Global and Regional Environmental Research, Center for Health Effects of Environmental Contamination, International Programs, Institute for Rural and Environmental Health, Iowa Quaternary Studies Group, and Public Policy Center.

The University's Main Library has a collection of more than 115,500 maps, 3,600 atlases and reference works, and around 100,000 aerial photographs, primarily of Iowa.

Geography Courses

Primarily for Undergraduates

044:001 Introduction to Human Geography  4 s.h.
Application of geographic principles to contemporary social, economic, and political problems; urban growth; problems of the ghetto; diffusion of innovations; territoriality and perception. GE: Social Sciences.

044:003 Introduction to Earth Systems Science  4 s.h.
Elementary principles of physical geography: physics of weather and climate, hydrological systems, geomorphological and geological forces, pedological processes, and ecological processes and patterns; geographic explanation of physical environment, with principles applied to the human use system; environmental pollution and natural hazards. GE: Natural Sciences.

044:005 Foundations of GIS  3 s.h.
Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, and GPS; data structures and organization; cartometry; symbolization and visualization.

044:010 The Contemporary Global System  4 s.h.
Problems of the global system and ways to address them; global economy and environment, state and security, social justice and human rights. GE: Foreign Civilization & Culture, Social Sciences.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>044:011</td>
<td>Population Geography</td>
<td>3 s.h.</td>
<td>Spatial considerations of population growth and distribution; minorities within a population; poverty; housing; social organization and disorganization; social systems, including education, religion, recreation, medical and social services; diffusion of ideas and traits over space. GE: Social Sciences.</td>
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</tr>
<tr>
<td>044:015</td>
<td>Introduction to Political Geography</td>
<td>3 s.h.</td>
<td>Emphasis on application of geographical and economic theory in understanding historical development and restructuring of political economies at global, national, and local levels; development of nation states, nationalism, imperialism, geopolitics, economic restructuring, electoral geography.</td>
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<tr>
<td>044:019</td>
<td>Contemporary Environmental Issues</td>
<td>3 s.h.</td>
<td>Political, economic, cultural, technologic, ecological, and ethical issues associated with natural resource and environmental problems, including population, global climate change, food production, tropical deforestation, soil erosion, waste management. GE: Social Sciences.</td>
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<tr>
<td>044:020</td>
<td>Discovery in Geography</td>
<td>3 s.h.</td>
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<tr>
<td>044:029</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.</td>
<td></td>
</tr>
<tr>
<td>044:030</td>
<td>The Global Economy</td>
<td>3 s.h.</td>
<td>Location and spatial organization of the world's major types of economies; agriculture, energy and minerals, manufacturing, transportation; trade and service centers. GE: Social Sciences.</td>
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</tr>
<tr>
<td>044:035</td>
<td>World Cities</td>
<td>3 s.h.</td>
<td>Urbanization as a process; specific concepts and theories of urbanization through global patterns, regional urban systems, individual metropolitan areas.</td>
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<tr>
<td>044:100</td>
<td>Readings for Undergraduates</td>
<td>arr.</td>
<td>Supervised readings in geography. Prerequisite: consent of instructor.</td>
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</tbody>
</table>

**For Undergraduate and Graduate Students**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>044:101</td>
<td>Climatology</td>
<td>3 s.h.</td>
<td>Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change records, theories, models; impacts of climate on society. Prerequisite: 044:003 or consent of instructor. Same as 012:104.</td>
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</tr>
<tr>
<td>044:103</td>
<td>Biogeography</td>
<td>3 s.h.</td>
<td>Patterns of plant and animal distribution and their interpretation; historical geography, including glaciation, plate tectonics; ecological geography, including physical factors such as climate, geology. Prerequisite: 002:001, or 002:010 and 002:011, or 044:003, or consent of instructor. Same as 002:103.</td>
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<tr>
<td>044:104</td>
<td>Environment and Development</td>
<td>3 s.h.</td>
<td>Environmental impacts of industrial and rural development explored through Third World case studies (Latin America, Africa, South and East Asia); environmental degradation from perspectives of political economy and ecology; class, gender, and indigenous peoples' issues; industry-agriculture linkages.</td>
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<tr>
<td>044:105</td>
<td>Introduction to Environmental Remote Sensing</td>
<td>3 s.h.</td>
<td>Basic concepts and principles of remote sensing; sources of data; georegistration; digital processing and classification of remotely sensed images for extraction of environmental information; linkage of remote sensing techniques with GIS analysis.</td>
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<tr>
<td>044:106</td>
<td>Foundations of GIS</td>
<td>3 s.h.</td>
<td>Cartography, map analysis, and geographic information systems; map projections and scale; data collection, remote sensing, GPS; data structures and organization; cartometry; symbolization and visualization.</td>
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<td>Course Code</td>
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<tr>
<td>044:109</td>
<td>Introduction to Geographic Visualization</td>
<td>3 s.h.</td>
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<td>Basic concepts and techniques that underlie cartographic representation and the broader field of geographic visualization; digital cartographic practices; how scientific visualization, information visualization, and user interface design contribute to geographic visualization; map symbolization, scale and generalization, animation and dynamic map design, multimedia, virtual and mixed environments, interfaces for GIS; experience applying cartographic and visualization techniques. Prerequisite: 044:005.</td>
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<td>044:110</td>
<td>GIS for Environmental Studies: Introduction</td>
<td>3 s.h.</td>
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<td>Methods of managing and processing geographic information for environmental analysis; basic concepts, structures, theories of geographic information system (GIS), basic analytical techniques, and hands-on experience in GIS operations. Prerequisite: 044:005 or consent of instructor.</td>
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<td>044:112</td>
<td>Mapping American Cities and Regions</td>
<td>3 s.h.</td>
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<td>Foundation concepts for GIS-based analysis of urban, social, and economic data for the United States; geo-referenced sources of U.S. national and state data; application to contemporary social issues. Prerequisite: 044:005 or consent of instructor.</td>
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<td>044:113</td>
<td>Principles of Geographical Information Systems</td>
<td>3 s.h.</td>
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<td>Issues in establishment of geographic information systems: spatial data encoding, raster-vector options, spatial and attribute resolution, cartographic data models, linkages to spatial analysis procedures, display techniques for decision support, institutional setting. Prerequisite: 044:005 or consent of instructor.</td>
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<td>044:115</td>
<td>Cultural Geographies of North America</td>
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<td>Historical and contemporary perspectives on the contested cultural geographies of North America; processes underlying the social construction and reproduction of place, region, and place-based identities.</td>
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<td>044:122</td>
<td>Environmental Conservation in the United States</td>
<td>3 s.h.</td>
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<td>Varied natural environments of the United States; problems arising from conflicting land uses; consideration of public land use policy, environmental impacts of different land uses, problems of habitat preservation and endangered species. Prerequisite: 044:003 or 044:019 or consent of instructor.</td>
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<td>044:123</td>
<td>Landscape Ecology</td>
<td>3 s.h.</td>
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<td>Effects of spatial pattern on spatial processes in ecology; characteristics of matrix, patch, corridor; fragmentation, deforestation, habitat loss; spatial flows of energy, matter, genetic information; relationship to human impact, global climate change. Prerequisite: 044:103 or a 100-level course in ecology.</td>
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<td>044:125</td>
<td>Environmental Impact Analysis</td>
<td>4 s.h.</td>
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<td>Environmental impact assessment methodologies; emphasis on cost-benefit-risk, cost-effectiveness and incremental analysis, and overlay and graphic techniques; optimal resource use, system simulation; field trips to local environmental control facilities. Prerequisite: 044:019. Same as 102:125.</td>
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<tr>
<td>044:126</td>
<td>Wetlands: Function, Geography, and Management</td>
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<td>Biotic aspects of water resources production; geographical basis of biophysical processes in drainage basins; spatial aspects of stream ecology; regional characterization of wetland structure and process. Prerequisite: 044:101 or 044:103. Same as 012:126.</td>
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<tr>
<td>044:127</td>
<td>Environmental Quality: Science, Technology, and Policy</td>
<td>3 s.h.</td>
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<td>Geographical perspectives in the study and interpretation of chemicals in the environment; environmental standards under existing laws; local, regional, national, international case studies in environment and health; socioeconomic and institutional considerations in designing environmental protection strategies. Prerequisite: 22S:025 or equivalent or consent of instructor.</td>
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<tr>
<td>044:128</td>
<td>GIS for Environmental Studies: Applications</td>
<td>3 s.h.</td>
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<td></td>
<td>Applications of geographic information system (GIS) techniques in environmental change analysis (especially land use/cover change), environmental assessment, hazard/risk analysis, environmental decision making. Prerequisite: 044:110 or consent of instructor.</td>
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<tr>
<td>044:131</td>
<td>Geography of Health</td>
<td>1-3 s.h.</td>
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</table>
Provision of health care in selected countries, with particular reference to the Third World; focus on problems of geographical, economic, cultural accessibility to health services; disease ecology, prospective payment systems, privatization, medical pluralism. Same as 152:131.

044:133 Transportation Economics 3 s.h.
Overview of transportation markets--intercity, rural, urban; transportation modes--rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Prerequisites: 06E:001 and 06E:002, or consent of instructor. Same as 06E:145, 102:133.

044:134 Health and Environment: GIS and Spatial 3 s.h.
Use of GIS and spatial analysis methods to focus on three areas: handling spatial data, exploratory spatial data analysis, and causality analysis of geographic phenomena.

044:135 Urban Geography 3 s.h.
Central ideas of modern urban geography, their links to social theory; focus on interrelation between social change, urban environment; evolution of urban systems, emergence of the capitalist city, urban social and residential differentiation, local politics of uneven development.

044:136 Planning Livable Cities 3 s.h.
Development of livable cities in the United States; economic, physical, environmental, and political forces that shape their growth; impact of planning, how it shapes the future of cities. Same as 102:101.

044:137 Health and Environment: GIS Applications 3 s.h.
Applications of GIS and spatial analysis for studying health outcomes and exposure to environmental contaminants at different geographical scales. Prerequisite: 044:131 or 044:134 or consent of instructor.

044:139 Spatial Analysis and Location Models 3 s.h.
Application of location models within GIS environments to support decision making; small area demographic forecasting, location-allocation models, regionalization problems, shortest path models, other spatial analysis methods used to support spatial decisions. Prerequisite: 044:005.

044:141 Introduction to Geographic Databases 3 s.h.
Fundamentals of database design and use for geographic or environmental domains; major database models and how they support geographic data; introduction to SQL for formulating database queries; experience using software for applying key database concepts. Prerequisites: 044:005 and undergraduate standing, or graduate standing and consent of instructor.

044:142 Simulation in Environmental Geography 3 s.h.
How computer simulations are used in environmental studies, with focus on landscape ecology (spatial patterns of organisms and ecosystems); basics of performing simulations; principles and applications of simulation through readings and performing simulations; frontiers of simulation use in the field; hands-on experience writing computer simulations that capture environmental processes (e.g., changing climate, predator-prey relations, nutrient flux), and analyzing the outcomes. Prerequisites: advanced courses in environmental geography or environmental science and senior standing.

044:145 Advanced Geographic Remote Sensing 4 s.h.
Theory and practice of remote sensing and digital image processing; practical applications to human-environment interactions. Prerequisite: 044:105.

044:150 Senior Project Seminar 3 s.h.
Development of a research project and preparation of a research report. Offered spring semesters. Prerequisite: senior standing.

044:151 Senior Thesis 3 s.h.
Original research. Prerequisites: senior standing and consent of instructor.

044:161 African Development 3 s.h.
Problems of economic, political, spatial integration in Africa; patterns and processes of economic development and nation building. GE: Foreign Civilization & Culture, Social Sciences.
044:164 The Middle East 3 s.h.
Middle East cultures, political economy, conflict; significance of the Middle East in world affairs, vice versa.

044:170 Geography of Justice 3 s.h.
Geographical analysis of social and environmental justice; justice from various cultural perspectives; cultural struggles over human rights.

044:174 Health, Work, and the Environment 3 s.h.
Current topics in occupational and environmental health; how the United States protects workers, protects people from environmental agents, and reduces environmental harm. Same as 175:101.

044:177 Environmental Justice 3 s.h.
Review of theoretical positions for examining environmental justice, application of those theories to environmental controversies around the globe.

044:178 Consequences of Global Environmental Change 3 s.h.
Physical components of global change, their relationship to environmental policy concerns; consequences manifested on local, regional, international scales. Prerequisites: 044:003 or 159:008, and 044:019; or consent of instructor.

044:180 Field Methods in Physical Geography 2-4 s.h.
Methods of measuring climate, vegetation, soil, landforms, water; projects in areas including field meteorology, tree-ring sampling, topographic surveying, vegetation sampling, water quality sampling, use of global positioning systems; introduction to research design.

044:181 Field Methods: Mapping and Mobile Computing 3 s.h.
Development and application of mobile geographic information technologies; key issues associated with global positioning systems (GPS), wireless technologies, field-based data collection and analysis, ubiquitous computing, and location-based services; experience using GPS, advanced mobile computing technologies, mobile GIS software to construct geographic datasets, and data sampling techniques.

044:183 Quaternary Environments 3 s.h.
Archaeological, botanical, zoological, physical, chemical means of reconstructing glacial and interglacial environments; techniques, results; interdisciplinary approach; field trips. Prerequisite: consent of instructor. Same as 012:173.

044:186 Soil Genesis and Geomorphology 3 s.h.
Introduction to soil genesis, soil geomorphology, and classification including the basics of soil profile description and soil-landscape, soil-vegetation, and soil-climate relationships; emphasis on study of soils as the interface between living and non-living Earth systems and the role of soils in sustaining ecosystems and human societies; short field excursions and a weekend field trip. Prerequisites: college earth science and chemistry. Same as 012:136.

044:188 Applied Geostatistics 3 s.h.
Applications of geostatistical methods to geology, geography, hydrology, environmental sciences, and engineering; variogram, Kriging, analysis of spatial-varied data with varied computer software in participants' specialties. Same as 012:178.

044:194 Geographic Perspectives on Development 3 s.h.
Theoretical and empirical studies of the regional development process, with emphasis on developing countries; alternative regional development theories and changes in development theories in the literature of geography, related disciplines. Prerequisites: satisfaction of introductory geography and social change requirements, or consent of instructor.

044:195 Undergraduate Research arr.
Supervised research in geography. Prerequisite: consent of instructor.

044:197 Special Topics arr.
Contemporary fields of inquiry, such as political economy, regional/African development, biophysical systems, GIS, locational analysis, water resources, economic geography, demographic analysis, environment, urbanization, transportation.

For Graduate Students

044:200 Readings
Supervised readings by graduate students in topics of their choice. Prerequisite: consent of instructor.

044:210 Fundamentals of Geography
Geography as an academic discipline; history, advances, epistemology, common themes.

044:211 Research and Writing in Geography
Identification of research areas; research questions and hypotheses; methodological decisions; research proposal and paper writing.

044:225 Environmental/Social Systems Analysis
Linear optimization and related models; recent applications in water resources management, pollution control, economics, public policy; potential future applications in designing water quality monitoring networks. Prerequisite: consent of instructor.

044:241 Integrating Time Into GIS
Fundamental concepts for integrating temporal elements into geographic information systems (GIS); conceptual and formal models of time, models of change, event-based modeling, modeling of moving entities; topics related to fundamentals of spatiotemporal databases and query languages. Prerequisites: advanced courses in GIS and graduate standing.

044:242 Simulations in Landscape Ecology
Dynamics of land use and land cover change explored through advanced use of computer simulations in landscape ecology; how simulation is used in the field; simulations based on landscape ecology questions, with analysis of results using typical landscape ecology metrics. Prerequisites: 044:142 and graduate standing.

044:243 Modeling Space and Time
How to generate time-space-resolved estimates of sociophysical environmental contexts with the aid of modern geo-spatial technologies; how to model social, behavioral, and health outcomes with reference to multilevel time-space-resolved sociophysical environmental contexts; environmental contexts from air pollution and pesticide concentration to neighborhood diversity; statistical modeling of varied social, behavioral, and health outcomes such as dropping out of college, smoking, excessive weight, asthma, mental and physical disability. Prerequisites: a course in statistics and good understanding of correlation and regression.

044:265 Planning Sustainable Transportation
Theories and methods of exerting public control over passenger and freight transportation; social and environmental regulation; effects of changing finance, regulation, and pricing policies, including privatization, tolls, impact fees. Same as 102:265.

044:286 Crossing Borders Seminar

044:287 Crossing Borders Proseminar

044:296 Topics in Geographic Information Science
Current theoretical research issues in geographic information science; intensive readings. Repeatable. Prerequisite: 044:113 or consent of instructor.

044:297 Special Topics
Contemporary fields of inquiry, such as political economy, regional/African development, biophysical systems, GIS, locational analysis, water resources, economic geography, demographic analysis, environment, urbanization, transportation.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>044:315</td>
<td>Seminar in Spatial Analysis and Modeling</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Research on spatial analysis, GIScience, simulation.</td>
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<tr>
<td>044:316</td>
<td>Seminar in Rural Land Use</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Research on land use, water resources, conservation.</td>
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<tr>
<td>044:318</td>
<td>Seminar in Health and Environment</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Research on health and environment.</td>
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<tr>
<td>044:319</td>
<td>Seminar in International Development</td>
<td>3 s.h.</td>
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<tr>
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<td>Research on GIScience and development.</td>
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<tr>
<td>044:350</td>
<td>Geography Colloquium</td>
<td>arr.</td>
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<tr>
<td>044:415</td>
<td>Research in Spatial Analysis and Modeling</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Directed research on spatial analysis, GIScience, simulation.</td>
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<tr>
<td>044:416</td>
<td>Research in Rural Land Use</td>
<td>3 s.h.</td>
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<td>Directed research in land use, water resources, conservation.</td>
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<tr>
<td>044:417</td>
<td>Research in Environmental Policy</td>
<td>3 s.h.</td>
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<td>Directed research in environmental justice and policy.</td>
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<tr>
<td>044:418</td>
<td>Research in Health and Environment</td>
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<td>Directed research in health and environment.</td>
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<tr>
<td>044:419</td>
<td>Research in International Development</td>
<td>3 s.h.</td>
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<td></td>
<td>Directed research in GIScience and development.</td>
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<tr>
<td>044:441</td>
<td>Research: Locational Analysis</td>
<td>arr.</td>
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<tr>
<td>044:450</td>
<td>Thesis</td>
<td>arr.</td>
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</table>
Geoscience

Chair: Mark K. Reagan
Professors: Ann F. Budd, C. Thomas Foster Jr., Philip H. Heckel, William C. McClelland, Mark K. Reagan, You-Kuan Zhang
Adjunct professor: David L. Campbell
Associate professors: Jonathan M. Adrain, E. Arthur Bettis III, Christopher A. Brochu, Jane A. Gilotti, David W. Peate, Frank H. Weirich
Adjunct associate professors: Gregory A. Ludvigson, Brian J. Witzke
Assistant professors: Jeffrey A. Dorale, Ingrid Ukstins Peate, Hallie J. Sims
Adjunct assistant professors: Ray Anderson, Rhawn F. Denniston, James Huber
Adjunct instructor: Tiffany S. Adrain

Undergraduate degrees: B.A., B.S. in Geoscience
Undergraduate nondegree program: Minor in Geoscience
Graduate degrees: M.S., Ph.D. in Geoscience
Web site: http://www.uiowa.edu/~geology

Geoscience faculty and students study the many physical, chemical, and biological systems that compose the earth. Using modern observational, analytical, and computational methods, they examine how the planet's interior, surface, hydrosphere, and atmosphere have evolved since the earth was born in the solar system 4.6 billion years ago. Topics commonly studied in the department include how plate movements cause earthquakes, volcanoes, and mountain building; global climate change and how climate change and catastrophic events cause changes in biodiversity; how and where economic resources are generated in the earth; and how these resources are located and used in modern society.

The geoscience curriculum provides students with hands-on experience analyzing rocks, minerals, fossils, soils, and waters, generally in a small classroom setting. Much of this experience is obtained in laboratory and field courses. Field courses include travel to other states or countries to view earth materials and fossils in the context of their natural surroundings.

The master's degree is regarded by most hiring agencies as the working degree. The doctoral degree is required for college and university teaching positions. However, an undergraduate degree is fully satisfactory in certain teaching, government, and industrial situations.

Many of The University of Iowa's geoscience graduates find employment with resource companies, environmental corporations, and educational institutions. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or fields such as urban planning, environmental studies, engineering, archaeology, science education, or oceanography as advanced areas. Geoscience provides skills useful for all of these.

Each year more than 1,800 students enroll in 012:003 Earth History and Resources, 012:004 Evolution and the History of Life, 012:005 Introduction to Geology, 012:007 Age of Dinosaurs, 012:008 Introduction to Environmental Science, 012:114 Energy and the Environment, and 012:140 Natural Hazards. All of these courses are approved by the College of Liberal Arts and Sciences for the natural sciences requirement of the General Education Program.


Many of the department's faculty members are involved in the interdisciplinary Environmental Sciences Program (see Environmental Sciences in the Catalog).

Undergraduate Programs

The department offers a Bachelor of Science, a Bachelor of Arts, and a minor in geoscience. Students majoring in geoscience take at least an academic year's work in three allied scientific areas--physics, chemistry, and mathematics--and a semester of biology in addition to a course in each major area of geology.

B.S. or B.A. with Double Major or Minor

Geoscience students may elect to pursue an additional major or a minor in a related discipline, usually chemistry, physics, biology, engineering, environmental sciences, or anthropology. See Earning a Degree (Earning Two or More Majors, Earning Multiple Undergraduate Degrees, and Certificates and Minors) in the College of Liberal Arts and Sciences Student Academic Handbook.

Independent Research for Geoscience Majors

A junior or senior who is ready to pursue independent research for credit in geoscience may assist a faculty member or graduate student with a current research project (012:019 Directed Study) or may initiate a small-scale project involving a combination of field, laboratory, and library investigation (012:119 Directed Study). Independent study is
encouraged and may result in an honors thesis (012:010 Honors Thesis in Geoscience) or a senior thesis (012:011 Senior Thesis in Geoscience) that is published subsequently. Students completing an honors or senior thesis must enroll in 012:190 Undergraduate Geoscience Colloquium for one semester during their final year of study.

**Bachelor of Science**

The Bachelor of Science in geoscience requires a minimum of 120 s.h., including at least 69 s.h. (18 courses) of work for the major (38 s.h. in geoscience courses and at least 31 s.h. in supporting disciplines). The program is designed to prepare students for immediate employment after graduation or to enter a graduate program in geology.

Students must complete the College of Liberal Arts and Sciences General Education Program. The department recommends that they fulfill the foreign language requirement with French, German, Russian, or Spanish and the social sciences requirement with an approved course in economics, geography, or anthropology.

Transfer students must complete a minimum of 15 s.h. of course work in the Department of Geoscience.

The geoscience major for a B.S. requires the following course work.

One of these:

012:003 Earth History and Resources 4 s.h.
012:005 Introduction to Geology (preferred) 4 s.h.

All of these:

012:004 Evolution and the History of Life 4 s.h.
012:041 Mineralogy 4 s.h.
012:052 Petrology 4 s.h.
012:092 Structural Geology 4 s.h.
012:093 Geologic Field Methods 3 s.h.
012:113 Summer Field Course 6 s.h.
At least two geoscience electives 6-7 s.h.

One of these:

012:121 Principles of Paleontology 3 s.h.
012:149 Elements of Geochemistry 3 s.h.
012:166 Hydrogeology 3 s.h.
012:180 Survey of Geophysical Methods 3 s.h.

At least 8 s.h. of calculus, including one of these:

22M:026 Calculus II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.

B.S. students complete an additional course in mathematics (numbered 22M:027 Introduction to Linear Algebra and above), computer science (numbered 22C:005 Introduction to Computer Science and above), or statistics (numbered 22S:030 Statistical Methods and Computing and above).

They also complete the following course work in chemistry, physics, and biology (these are minimum requirements).

At least 8 s.h. of college-level chemistry is required, including the following, equivalent courses, or more advanced courses; chemistry courses numbered below 004:011 Principles of Chemistry I cannot be used to satisfy the chemistry requirement for the B.S. in geoscience.

004:011-004:012 Principles of Chemistry I-II 8 s.h.

At least 8 s.h. of college-level physics is required, as follows; physics courses numbered below 029:011 cannot be used to satisfy the physics requirement for the B.S. in geoscience.

One of these sequences:

029:011-029:012 College Physics I-II 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.
At least one biological science course that includes a laboratory (4 s.h.) is required. Students with an interest in paleontology are encouraged to take 002:010 Principles of Biology I and 002:011 Principles of Biology II.

**RECOMMENDED OPTIONS**

All B.S. students should take elective courses from the following groups in order to broaden their undergraduate experience and prepare themselves for graduate study or professional employment. Students who have clear career goals are advised to take three or more elective courses from the group that fits their needs most closely. Students also may seek a broad education in geoscience by choosing elective courses from a number of groups.

**Quaternary Geology**

012:102 Earth Surface Processes  
012:110 Introduction to Applied Remote Sensing  
012:130 Sedimentary Geology/Stratigraphy  
012:136 Soil Genesis and Geomorphology  
012:138 Fluvial Geomorphology  
012:149 Elements of Geochemistry  
012:152 Isotope Geochemistry  
012:153 Geocomputing  
012:166 Hydrogeology  
012:172 Glacial and Pleistocene Geology  
012:173 Quaternary Environments  
012:178 Applied Geostatistics  
012:179 Geology for Engineers  
012:185 Approaches to Geoarchaeology

**Environmental Geology**

012:107 Marine Ecosystems and Conservation  
012:108 Introduction to Oceanography  
012:110 Introduction to Applied Remote Sensing  
012:138 Fluvial Geomorphology  
012:139 Integrated Watershed Analysis  
012:140 Natural Hazards  
012:149 Elements of Geochemistry  
012:152 Isotope Geochemistry  
012:153 Geocomputing  
012:166 Hydrogeology  
012:173 Quaternary Environments  
012:178 Applied Geostatistics  
012:179 Geology for Engineers  
012:180 Survey of Geophysical Methods  
012:184 Groundwater Modeling

**Geochemistry**

012:141 Analytical Methods  
012:149 Elements of Geochemistry  
012:152 Isotope Geochemistry  
012:153 Geocomputing  
012:166 Hydrogeology  
012:178 Applied Geostatistics

**Tectonics/Petrology**

012:140 Natural Hazards
Bachelor of Arts

The Bachelor of Arts in geoscience requires a minimum of 120 s.h., including at least 51 s.h. (17-18 courses) of work for the major (35 s.h. in geoscience courses and at least 16 s.h. in supporting disciplines). The program is designed to provide students with a varied background in geology and a broader choice of electives than is practical in the B.S. program. The B.A. is intended for students who are interested in the fundamentals of geology or earth science teaching (see Teaching and Learning, College of Education, in the Catalog). Completing the minimum requirements for this degree may not adequately prepare a student for an entry-level professional job in geology.

Students must complete the College of Liberal Arts and Sciences General Education Program. The department recommends that they fulfill the foreign language requirement with French, German, Russian, or Spanish and the social sciences requirement with an approved course in economics, geography, or anthropology.

Transfer students must complete a minimum of 15 s.h. of course work in the Department of Geoscience.

The geoscience major for a B.A. requires the following course work.

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>012:003</td>
<td>Earth History and Resources</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>012:005</td>
<td>Introduction to Geology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>
All of these:
012:041 Mineralogy 4 s.h.
012:052 Petrology 4 s.h.
012:190 Undergraduate Geoscience Colloquium 1-2 s.h.

One or both of these:
012:004 Evolution and the History of Life 4 s.h.
012:121 Principles of Paleontology 3 s.h.

One to four of these:
012:092 Structural Geology 4 s.h.
012:130 Sedimentary Geology/Stratigraphy 3 s.h.
012:136 Soil Genesis and Geomorphology 3 s.h.
012:138 Fluvial Geomorphology 3 s.h.
012:161 Stratigraphy 3 s.h.
012:166 Hydrogeology 3 s.h.

B.A. students must complete the following course work in mathematics and chemistry (these are minimum requirements).
College-level mathematics (may include computer science and statistics) 10 s.h.

At least two college-level chemistry courses (either Option 1 or Option 2) are required; chemistry courses numbered below 004:007 General Chemistry I cannot be used to satisfy the chemistry requirement for the B.A. in geoscience.

Option 1:
004:007-004:008 General Chemistry I-II 6 s.h.

Option 2:
004:011-004:012 Principles of Chemistry I-II 8 s.h.

FIELD REQUIREMENT
To complete the major, students must have field experience. They may take two semesters of 012:018 Geology Field Trip: Selected National Parks or 012:116 Field Trip, or one semester of each of these courses (total of 4 s.h.). Or they may take one semester of 012:093 Geologic Field Methods, 012:113 Summer Field Course, or the Iowa Lakeside Laboratory session.

012:018 Geology Field Trip: Selected National Parks 2, 4 s.h.
012:116 Field Trip 2, 4 s.h.
012:093 Geologic Field Methods 3 s.h.
012:113 Summer Field Course 6 s.h.
One natural science session at Iowa Lakeside Laboratory

Four-Year Graduation Plan
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: These checkpoints show the range of required course work; the B.A. program requires 17-18 courses, and the B.S. requires 18.

The geoscience major requires field trip experiences, many of which take place during vacation periods during or between semesters, or during the summer session. These checkpoints do not include the field trip requirements.
Before the third semester begins: competence in math through trigonometry, first required chemistry course, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three to five courses in the major (including the remainder of the chemistry requirement and continuation of the mathematics requirement) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: 7-11 courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: 10-14 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn a degree with honors in geoscience. Honors program students must complete a senior thesis (012:010 Honors Thesis in Geoscience) and maintain a cumulative University of Iowa g.p.a. of at least 3.33 in order to graduate with honors (contact the University of Iowa Honors Program for more information). They also must obtain approval of their honors thesis contract from their advisor and the department's undergraduate committee; have a cumulative g.p.a. of at least 3.33 in geoscience courses; earn a grade of B or higher in the Honors Thesis in Geoscience (012:010); and earn a grade of B or higher in 012:190 Undergraduate Geoscience Colloquium in their thesis year.

Minor

The minor in geoscience requires a minimum of 15 s.h. in geoscience courses, including 12 s.h. in advanced-level courses offered by the Department of Geoscience at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Courses 012:041 Mineralogy, 012:052 Petrology, 012:092 Structural Geology, 012:093 Geologic Field Methods, and all geoscience courses numbered 100 and above are considered advanced for the minor.

College-level courses in mathematics, physics, chemistry, and biology usually are required as collateral work for geology students. Those seeking a minor in geoscience should be sufficiently prepared in the areas of supporting sciences before they take advanced courses in geoscience.

Recommended advanced courses in geoscience that deal with important areas of earth materials and earth processes are as follows.

012:041 Mineralogy 4 s.h.
012:052 Petrology 4 s.h.
012:092 Structural Geology 4 s.h.
012:093 Geologic Field Methods 3 s.h.
012:102 Earth Surface Processes 3 s.h.
012:107 Marine Ecosystems and Conservation 3 s.h.
012:108 Introduction to Oceanography 2 s.h.
012:114 Energy and the Environment 3 s.h.
012:121 Principles of Paleontology 3 s.h.
012:130 Sedimentary Geology/Stratigraphy 3 s.h.
012:136 Soil Genesis and Geomorphology 3 s.h.
012:138 Fluvial Geomorphology 3 s.h.
012:139 Integrated Watershed Analysis 3 s.h.
012:149 Elements of Geochemistry 3 s.h.
012:161 Stratigraphy 3 s.h.
012:180 Survey of Geophysical Methods 3 s.h.
012:191 Geotectonics 3 s.h.

National Honor Society

The department sponsors a chapter of Sigma Gamma Epsilon National Honor Society for the Earth Sciences. Students with an overall g.p.a. of at least 2.80 and at least 3.20 in geoscience courses are considered for membership after they have completed a minimum of 16 s.h. of course work in geoscience. Consult the departmental honors advisor for more information.
Graduate Programs

The Department of Geoscience offers a Master of Science, with and without thesis, and a Doctor of Philosophy in geoscience.

All geoscience graduate students are responsible for meeting requirements and deadlines. They should acquaint themselves with the Manual of Rules and Regulations of the Graduate College, particularly sections IX, X, and XII (see Graduate College in the Catalog), and with the University calendar (for deadline dates and so forth).

The department provides detailed information about current graduate degree requirements and timelines for making satisfactory progress toward a degree in the document "The University of Iowa Guidelines for Graduate Study in Geoscience"; see Graduate Programs in Geoscience on the department's web site and click Graduate Student Guidelines, under Additional Information.

Entering graduate students are required to complete 012:207 Geologic Orientation during their first fall semester after enrolling in the program. M.S. students must complete 012:201 Geoscience Seminar Series each of their first four semesters in the M.S. graduate program, and Ph.D. students must complete the course each of their first six semesters in the Ph.D. program.

By the first month of their second semester after enrolling in the M.S. or Ph.D. program, students must select an advisor. Also during their second semester after enrolling, they must consult with faculty members and arrange for an advisory committee, which must be approved by the department chair by the end of their second semester.

Throughout their graduate study, all M.S. and Ph.D. students must maintain a g.p.a. of at least 3.00 on all course work required for their degree and on all graduate-level geoscience course work. Students whose g.p.a. drops below 3.00 are placed on academic probation.

Geoscience graduate students are encouraged to present their research at local, regional, national, or international meetings. The department provides partial funding for travel to such meetings.

Master of Science

The Master of Science in geoscience requires a minimum of 30 s.h. of graduate credit. The program is designed primarily to prepare students for professional careers in geoscience, or for more advanced studies. M.S. students may count up to 8 s.h. of research credit toward the 30 s.h. required for the degree. They must earn at least 24 s.h. toward the degree in University of Iowa courses taken after they enroll in the program. M.S. students are required to complete 012:201 Geoscience Seminar Series each of their first four semesters in the M.S. program.

M.S. thesis students are responsible for obtaining their advisory committee’s approval of a suitable program of course work and for satisfactory development of research plans as outlined in a thesis proposal, which should be completed and approved by the department chair before the end of the second semester of full-time study. Thesis students must deliver a half-hour public presentation of their thesis, followed by an oral defense, supporting research, and related topics. They also must take a final examination, for which members of their advisory committee act as examiners.

Individuals interested in pursuing the M.S. without thesis must obtain the department chair’s permission. The program is designed for students with extensive geological background and experience. Requirements for the nonthesis option are similar to those for the M.S. with thesis, except that in place of the thesis, nonthesis students submit a manuscript that their thesis committee deems acceptable for submission for publication. The student may choose to submit a previously published manuscript. Nonthesis students also must take a final examination that covers course work and the work done in place of the thesis.

Doctor of Philosophy

The Doctor of Philosophy in geoscience requires a minimum of 72 s.h. of graduate credit. The program is designed primarily to train students to be independent researchers and/or teachers, and to bring students to the forefront of a specialized area of geoscience.

Ph.D. students usually enter the program with established fields of interest and a research advisor already selected. Under exceptional circumstances, a student may be admitted to the Ph.D. program without an established field of interest.

After earning their first 24 s.h. of graduate credit, Ph.D. students must spend at least two semesters enrolled in full-time study (9 s.h. per semester) at The University of Iowa. They are required to include in their plan of study at least 18 s.h. of regular course work taught by tenured or tenure-track faculty members of the Department of Geoscience. Students must earn the 18 s.h. after being admitted to the Ph.D. program. Directed study and research credit do not count toward the 18 s.h.
Students must complete 012:207 Geologic Orientation by the end of their first year of enrollment in the Ph.D. program. They are also required to complete 012:201 Geoscience Seminar Series each of their first six semesters after being admitted to the Ph.D. program.

Entering Ph.D. students must consult with a research advisor or the department's director of graduate study before they enroll in courses. By the first month of their second semester of doctoral study, all Ph.D. students must select an advisor; the advisor must be a tenured or tenure-track faculty member of the Department of Geoscience and must be approved by the department chair. Each student also must select a thesis topic and forward it to the department chair for approval by the end of the first month of the second semester of doctoral study.

During the second semester of doctoral study, each Ph.D. student should propose an advisory committee of at least five faculty members, including the advisor. The advisor and at least one committee member must be tenured or tenure-track faculty members of the Department of Geoscience. A majority of the committee's members should be from the Department of Geoscience, and one member must be a University of Iowa graduate faculty member from outside the Department of Geoscience. The committee must be approved by the department chair.

Before the end of the second semester of doctoral study, each student must obtain his or her committee's approval of a suitable plan of study, which is then submitted to the department chair for approval. In consultation with the advisor and other faculty members, each doctoral candidate prepares a formal dissertation proposal, which must be submitted to the department chair by the end of the candidate's third semester of doctoral study and before the bulk of the candidate's research is completed. The proposal must receive the committee's unanimous approval.

Students should complete most of their course work before taking the comprehensive examination, which consists of both written and oral portions and which must be passed before the end of the fourth semester of doctoral study.

Once Ph.D. candidates have passed the comprehensive examination, they are required to register each semester until they receive the degree. Candidates who have completed their plan of study may register for 000:002 Doctoral Continuous Registration or 000:003 Doctoral Final Registration.

Students must submit their written dissertation to the committee at least two weeks before the final examination. All Ph.D. candidates must deliver a one-hour public presentation associated with the dissertation defense.

Admission

Applicants to graduate programs in geoscience must hold a bachelor's degree from a college or university accredited by a regional accrediting association. They must have a g.p.a. of at least 3.00 (M.S. applicants) or at least 3.20 (Ph.D. applicants), or a combined verbal and quantitative score of at least 1100 and an analytical writing score of at least 4.5 on the Graduate Record Exam (taken since October 1, 2002).

Applicants with a g.p.a. of at least 2.30 (M.S. applicants) or at least 2.70 (Ph.D. applicants) may be admitted on conditional status. They must enroll in at least 8 s.h. of graduate course work during each session and must attain regular status at the end of the second session of registration.

Applicants whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

The department also admits students who are not candidates for a degree. Such students, called professional improvement students, must meet the same standards as applicants to the master's program.

Financial Support

The Department of Geoscience offers merit-based graduate assistantships. All admitted graduate students are eligible for assistantships.

M.S. students may hold an assistantship for two academic years and Ph.D. students for up to four. In order to retain their appointments from semester to semester, students must perform satisfactorily in the assistantship and must continue to make satisfactory progress toward completion of their degrees. Students who begin graduate study without an assistantship may become eligible for one as appointments become available.

Students must demonstrate proficiency in English before they can be considered for a teaching assistantship. Teaching assistants are evaluated each semester for teaching proficiency and communication skills, through student evaluations and observation by a supervising instructor. Research assistantships are typically funded by individual faculty grants; they vary depending on the nature of the funded project. Duties often involve activities such as sample collection and preparation; collection, analysis, and interpretation of analytical or measurement data; preparation of maps and diagrams; and assistance with fieldwork.

Outstanding students who are entering their first year of graduate school and are enrolled in doctoral programs may
apply for a Presidential Graduate Fellowship, which provides three academic years and all summers without formal work assignments, freeing students to pursue their own research.

The department also awards a significant number of tuition scholarships based on merit.

**Facilities**

Resources and equipment available for research in the Department of Geoscience include the following.

**Computer facilities:** five teaching classrooms with 10-12 networked PC workstations; a computing classroom with 20 PCs and 10 Macs with GIS, GMS, remote sensing, image analysis, and specialized computational software packages; a student computer room with 6 PCs and 2 Macs; and a number of multiprocessor workstations in research laboratories.

**Environmental and Hydrogeology Laboratory:** permeameters and tensionometers; pumping and slug/bail test units with transducers and data-loggers; water-quality analysis facility; advanced groundwater modeling and geostatistics software; advanced data logging systems for field research; 3-D sensor arrays (wind and water systems); and facilities for field instrumentation design and construction.

**Environmental Instrumentation Laboratories:** storage, testing, and teaching facility focusing on field instrumentation; assembly, housing, and testing of climatic, meteorological, fluvial, water quality and associated environmental instrumentation data recording systems and sampling systems.

**Geomorphic Computing Laboratory:** high-end visualization, digitizing, remote sensing and GIS systems; and high-end multiprocessor workstations.

**Geoscience Library:** a branch of University of Iowa Libraries that serves the University community, the Iowa Geological Survey Bureau, and the public; more than 55,000 volumes to support research, study, and teaching, including publications of state, federal, and international geological surveys and field trip guidebooks; more than 73,000 geological maps, including the newest versions of U.S. topographic quadrangle maps.

**Morphometric laboratories:** reflex microscope and microscribe for capturing 3-D data; high-resolution digital cameras and microscopes for 2-D image analysis; and laboratories for micro- and macro-fossil preparation.

**Paleontological Repository:** more than a million specimens, including some 25,000 type and referred specimens, with 6,000-7,000 primary types; invertebrate, vertebrate, and plant fossils of all geologic ages, and more than 90 percent Paleozoic invertebrates; the fifth-largest university collection in North America (CONARP 1977).

**Petrology laboratories:** clean laboratory for preparation of samples for elemental and isotopic analysis; alpha-spectrometry laboratory; image analysis; heating freezing stage; petrographic microscopes; photo microscopy; wet-chemistry facilities; rock preparation and mineral separation; UNIX, Windows, and Mac workstations for data analysis and modeling; and one atm gas-mixing furnace for melt inclusion homogenization.

**Quaternary Materials Laboratory:** pipette grain-size analysis apparatus; chittick apparatus; Sedigraph 5100 X-ray particle-size analyzer; wet-chemistry facilities; C-H-N element analyzer; a Flotech flotation system; and a Giddings drill rig.

**Scanning Electron Microscope:** Hitachi S-3400N, a variable-pressure scanning electron microscope (SEM) equipped with a motorized stage, large chamber, and digital image capture; capable of imaging specimens with no metal coating, or specimens that are slightly hydrated or porous, as well as conventionally processed specimens; equipped with a Bruker AXS Quantax 400 X-ray microanalysis system; XFlash silicon drift detector with excellent energy resolution and light element detection, providing ultra-fast acquisition of line scans and elemental maps.

**Sedimentary geology laboratories:** water ion chromatograph; image analysis; sedigraph X-ray particle-size analyzer; and a soil/sediment characterization laboratory.

**Thin-section and rock preparation laboratory:** diamond saws and specialized grinding equipment used to prepare ultrathin slices (30 microns thick) of rocks and fossils for microscopic and electron microprobe analysis.

**Cooperative Activities**

The department does collaborative work with the Iowa Geological Survey Bureau and the Office of the State Archaeologist of Iowa. Geoscience students sometimes work on projects for the survey.

The Departments of Anthropology, Biology, Chemistry, Civil and Environmental Engineering, Geography, and Geoscience share services, expertise, joint instruction, and equipment. The geoscience department is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in anthropology, biology, geography, geology, and statistics. Course work, degree programs, and facilities are shared among departments. The geoscience department and its faculty also support and actively participate in the
interdisciplinary Environmental Sciences Program, which offers a Bachelor of Science degree.

**Field Trips**

Field trips are integral parts of several courses in geoscience, with frequent weekend general-interest events. The geology of the Iowa City region is characterized by Quaternary glacial sediments on a largely Paleozoic sedimentary section a few hundred meters thick, overlying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geode sites are located within a few hours’ drive. Numerous Pleistocene glaciations are represented in Iowa, and field studies of landforms, exposures, and cores continue to yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossil biotas from both glacial and interglacial deposits.

Spring break provides time for longer trips, which are open to all geoscience students. In recent years, students have traveled to the southern Appalachians, Arizona, Death Valley, the Florida Keys, Hawaii, New Mexico, the Ozarks, Puerto Rico, and Texas. Advanced classes have visited California, Colorado, Kansas, Oklahoma, Wisconsin, and Ontario, Canada.

**Geoscience Courses**

Not all courses are offered every year.

**Primarily for Undergraduates**

012:003 **Earth History and Resources**
3-4 s.h.
Relationships between plate tectonics, geologic time, and the rock cycle with volcanoes and igneous, sedimentary, metamorphic rocks; fossils; radioactive isotopes; landscape evolution; mountain building; natural resources; their impacts on civilization. GE: Natural Sciences.

012:004 **Evolution and the History of Life**
3-4 s.h.
Fossils over the past 3.5 billion years, origin and evolution of life, evolutionary radiations and mass extinctions, the invasion of land, dinosaurs, the age of mammals, relationship between biological systems and environmental change in earth history. Offered spring semesters. GE: Natural Sciences.

012:005 **Introduction to Geology**
4 s.h.
Minerals, rocks, and rock-forming processes (including volcanoes and sedimentary environments); surface processes (rivers, groundwater, glaciers, deserts, ocean shorelines), major earth processes (continental drift, plate tectonics, earthquakes, mountain building); impact on civilization. Offered fall semesters. GE: Natural Sciences.

012:007 **Age of Dinosaurs**
4 s.h.
Origin and evolutionary history of dinosaurs; diversity of dinosaurian groups, their geographic distributions and paleoecology; origins of flight among dinosaurs; environmental context, including other animals and plants that lived alongside dinosaurs; the so-called extinction of dinosaurs and radiation of modern forms; the role dinosaurs play in the interaction between science and the popular media. Offered fall semesters. GE: Natural Sciences.

012:008 **Introduction to Environmental Science**
3-4 s.h.
Biological and physical character of the Earth; interaction of humans with the environment, including impacts on ecosystems, climate, natural processes, resources; alternative options, including sustainability, waste management, energy, land reform. GE: Natural Sciences. Same as 159:008.

012:009 **Introduction to Environmental Sciences Laboratory**
1 s.h.
Laboratory component of 012:008. Prerequisites: environmental sciences or geoscience major; and 012:008 or 159:008 for 3 s.h., or equivalent course work without a laboratory component; or consent of instructor. GE: Natural Sciences. Same as 159:009.

012:010 **Honors Thesis in Geoscience**
arr.
Independent research resulting in an honors thesis. Prerequisite: honors standing.

012:011 **Senior Thesis in Geoscience**
arr.
Independent research resulting in a senior thesis. Prerequisite: senior standing.

012:017 **Geology of the U.S. National Parks**
2 s.h.
Geologic features, geologic history, important biological and archaeological characteristics, with emphasis on features that caused certain areas to be included in national park system. Offered spring semesters. Prerequisite: introductory geology course.

**012:018 Geology Field Trip: Selected National Parks** 2 s.h.
Observation, interpretation of prominent geologic, geomorphic, biological features; semester-break or semester-end visits to different parks or groups of parks each year. Offered spring semesters. Prerequisite: consent of instructor.

**012:019 Directed Study**
Special topics, independent research. Prerequisite: consent of instructor.

**012:029 First-Year Seminar** 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**012:041 Mineralogy** 4 s.h.
Physical, chemical, and optical properties of minerals; phase relations; structures; associations; diagnostic features for identification. Offered fall semesters. Prerequisites: 012:003 or 012:005; and a math course through 22M:005 or equivalent, or consent of instructor. Pre- or corequisite: introductory chemistry.

**012:052 Petrology** 4 s.h.
Nature, origin, and petrography of igneous, sedimentary, and metamorphic rocks in hand specimen and thin-section. Offered spring semesters. Prerequisite: 012:041.

**012:092 Structural Geology** 4 s.h.
Rock deformation; description, classification of geologic structures such as faults and folds; processes that generate geologic structures; solution of structural problems; interpretation of geologic maps; weekend field trip to Baraboo, Wisconsin. Prerequisites: 012:052 and 22M:005.

**012:093 Geologic Field Methods** 2-3 s.h.
Principles and techniques of basic geologic mapping in the fold-and-thrust belt of Southwestern Montana. Offered during three-week summer session. Prerequisite: 012:052.

**For Undergraduate and Graduate Students**

**012:100 Geologic Training Assignment** 1-3 s.h.
Practical experience. Prerequisites: grade of C or higher in 012:052, geology g.p.a. of at least 3.00, and consent of instructor.

**012:102 Earth Surface Processes** 3 s.h.
Basic geomorphic and environmental processes that shape the earth’s surface; emphasis on erosion, transport, deposition by land mass movement (creep, landslides, earth flow), fluid agents (wind, water, ice); methods used to study these processes. Prerequisite: 012:005 or 012:008 or 044:003 or 159:008 or consent of instructor. Same as 159:102.

**012:104 Climatology** 3 s.h.
Boundary layer processes that drive atmospheric dynamics; exchanges of energy and water at simple and complex surfaces; global climate change records, theories, models; impacts of climate on society. Prerequisite: 044:003 or consent of instructor. Same as 044:101.

**012:107 Marine Ecosystems and Conservation** 3 s.h.
Introduction to ocean ecosystems, including coral reefs, mangroves, estuaries and salt marshes, sandy and rocky shores, seagrass and kelp beds, the deep sea, plankton; biodiversity of each ecosystem; interrelationship of biota and physical/chemical environment; interactions among organisms, including food webs and symbiosis; local and global threats such as overfishing, pollution, ocean acidification, global warming, sea level change; ongoing biodiversity crisis, solutions for conservation problems.

**012:108 Introduction to Oceanography** 2 s.h.
Descriptive, chemical, physical, biological, geological aspects of oceans; impact on weather, climate, shorelines, food supply, other aspects of civilization. Offered spring semesters. Recommended: knowledge of basic chemistry, biology, physics, earth science.

**012:110 Introduction to Applied Remote Sensing**
Remote sensing of the earth's surface from aircraft, satellites; aerial photograph interpretation; remote sensing systems, methods, data analysis using electromagnetic spectrum and digital processing techniques, including visible, infrared, microwave radiation; remote sensing applied to geologic and environmental problems. Prerequisite: college physics or physical geology or equivalent. Same as 159:110.

**012:113 Summer Field Course**
Description and mapping of rock units and geologic structures in the Wasatch and Uinta Mountains, Park City, Utah. Offered summer sessions. Prerequisites: 012:041, 012:052, 012:092, and 012:093.

**012:114 Energy and the Environment**
Scientific concepts related to potentially significant energy sources of the 21st century; environmental impacts, positive and negative, of each energy source as well as geologic and geographical distributions and applications. Prerequisite: college earth science course or graduate standing or consent of instructor. GE: Natural Sciences.

**012:116 Field Trip**
Field trip to an area of geologic interest, such as carbonate area of Florida, Grand Canyon (Arizona), Rio Grande Rift (New Mexico), Death Valley (California, Nevada), Appalachian Mountains (Virginia); preceded by weekly discussions of destination's geology. Offered spring semester. Prerequisite: consent of instructor.

**012:119 Directed Study**
Special topics, independent research. Prerequisite: consent of instructor.

**012:120 Collection Care and Management**
How a museum's management policy relates to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as 024:120.

**012:121 Principles of Paleontology**
Patterns of evolution in fossil record; species and analysis of their evolutionary relationships; paleoecology, paleocommunity evolution; evolutionary radiation and mass extinctions; large-scale relationships between biodiversity and climatic change. Offered fall semesters.

**012:122 Evolution of the Vertebrates**
Evolutionary history of vertebrates revealed by fossils and information from living animals; biogeographic, stratigraphic, paleoecological aspects of selected groups, especially mammals and dinosaurs; transitions from aquatic to terrestrial life, origins of flight, major events in vertebrate history (including mass extinctions and explosive radiations). Prerequisite: introductory course in geoscience or bioscience.

**012:126 Wetlands: Function, Geography, and Management**
Biotic aspects of water resources production; geographical basis of biophysical processes in drainage basins; spatial aspects of stream ecology; regional characterization of wetland structure and process. Prerequisite: 044:101 or 044:103. Same as 044:126.

**012:130 Sedimentary Geology/Stratigraphy**
Basic concepts of sedimentology, stratigraphy, depositional environments, sedimentary petrology; hands-on analyses of sediments and sedimentary rocks, including thin-section petrography; lecture/laboratory. Offered spring semesters. Prerequisite: 012:041. Corequisite: 012:052.

**012:136 Soil Genesis and Geomorphology**
Introduction to soil genesis, soil geomorphology, and classification including the basics of soil profile description and soil-landscape, soil-vegetation, and soil-climate relationships; emphasis on study of soils as the interface between living and non-living Earth systems and the role of soils in sustaining ecosystems and human societies; short field excursions and a weekend field trip. Prerequisites: college earth science and chemistry. Same as 044:186.

**012:138 Fluvial Geomorphology**
Hydrologic principles, stream channel processes, and fluvial geomorphology within drainage basin systems; spatial and temporal variations in water distribution, analysis of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrograph construction, modeling. Prerequisite: 012:102 or another 100-level geology or hydraulics course; or consent of instructor. Same as 053:128.

012:139 Integrated Watershed Analysis
Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality, water use and treatment; basin management issues related to forestry, agriculture, urbanization, floods, droughts.

012:140 Natural Hazards
How earth-atmosphere-hydrosphere-space systems produce events catastrophic to humans on the scale of individual lives to civilizations; root causes of earthquakes, landslides, volcanic eruptions, floods, hurricanes, tsunami, tornadoes, and asteroid impact, and their local, national, and global impact; spatial and temporal occurrences of these hazards; methods and processes for hazard preparedness, response, and recovery; social, economic, and policy aspects that affect and compound the magnitude of disasters associated with natural phenomena; case studies drawn from contemporary and ancient societies. Prerequisite: 012:003 or 012:005 or 012:008 or 044:003 or 159:008. GE: Natural Sciences.

012:141 Analytical Methods
Theory and practice of analyzing the chemical, isotopic, and mineralogical compositions of rocks, organic materials, and waters; use of modern analytical instruments. Offered spring semesters. Prerequisites: 004:007, 012:052, and 029:012 or 029:082.

012:142 Vertebrate Osteology and Phylogeny
Anatomy of the vertebrate skeleton from developmental, functional, and phylogenetic perspectives; relationship between skeletal, muscular, and nervous systems; history of the skeleton through modern forms; lecture and laboratory. Prerequisite: 012:122 or 213:190 or consent of instructor.

012:144 Phylogenetics and Biodiversity
Methods available for reconstructing evolutionary history and measuring biodiversity, including distance, parsimony, likelihood, and taxic approaches; applications to molecular and morphological systematics, historical biogeography, study of diversity through time. Prerequisites: 012:004 or 012:121, or 002:010 and 002:011, or consent of instructor.

012:145 Morphometrics
Quantitative methods for collection and analysis of morphologic data, including 2-D and 3-D geometric morphometrics and use of multivariate statistical methods to study size and shape; applications of morphometric techniques to study development and its evolution, variation within and among species, morphologic disparity, related topics in paleontology and evolutionary biology. Prerequisite: 012:004 or 012:121 or consent of instructor.

012:146 Techniques in Paleontology
Paleontological data acquisition and analysis, including Fossil collection, preparation, imaging, description; computerized data compilation, manipulation, analysis. Prerequisites: 002:010, and 002:011 or 012:004 or 012:121; or consent of instructor.

012:149 Elements of Geochemistry
Introduction to application of chemical principles to solution of geologic problems concerning earth and environmental processes; origin of elements, chemical differentiation of Earth and the solar system, geochronology, application of radiogenic and stable isotopes, chemical equilibrium, elementary thermodynamics and kinetics, carbonate and silicate stability relationships, chemical weathering, adsorption, trace element behavior, oxidation-reduction reactions, characterization of surface and ground waters, and ocean chemistry. Prerequisites: 004:008 and 012:005, or consent of instructor.

012:152 Isotope Geochemistry
Radiogenic and stable isotope systematics, applications to geological, cosmological, and environmental problems. Prerequisite: consent of instructor.

012:153 Geocomputing
Computer applications in geoscience; visualization, data management, interactive modeling, computer graphics. Same as 159:153.
012:156 Scanning Electron Microscopy and X-Ray Microanalysis
Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Prerequisites: a physical science course and consent of instructor. Same as 052:156, 060:156.

012:160 Advanced Collection Care and Management
Builds on 024:120; types of museum objects and materials, their care and management; care, storage, and use of paper, books, photographs, works of art, electronic information media, textiles, furniture, archaeological artifacts, natural history specimens, archives; digitization projects, integrated pest management, risk assessment, museum security, museum construction and renovation, grant writing; for students planning museum careers or for professions that require care of collections. Prerequisite: 012:120 or 024:120 or consent of instructor. Same as 024:140.

012:161 Stratigraphy
Genesis of sedimentary rocks, geologic time, stratigraphic nomenclature, biostratigraphic and physical correlation methods, mass extinctions, seismic and sequence stratigraphy, basin analysis and modeling, stratigraphic field methods. Offered fall semesters. Prerequisite: 012:052 or consent of instructor.

012:162 Seismic Stratigraphy
Display, processing, and interpretation of a 3-D reflection seismic data set from the Permian Basin, Tex., via standard petroleum-industry computer programs; advantages, drawbacks, and pitfalls of seismic data; how successful interpretation depends on integrating properly processed seismic data with well-log information and up-to-date geologic concepts of sedimentology and stratigraphy. Corequisite: 012:161 or consent of instructor.

012:166 Hydrogeology
Water flow and contaminant transport in subsurface environment; basic principles and laws of physical, chemical, and biological processes in geological formations for sustainable development of groundwater resources; groundwater hydrology, regional aquifer systems, well hydraulics, aquifer tests, groundwater contamination and remediation, management and sustainability of groundwater resources. Prerequisite: senior or graduate standing.

012:170 Evolution of Ecosystems
Evolutionary history of terrestrial and marine ecosystems; ecological processes from population to ecosystem levels; community assembly, trophic levels, networks, biodiversity dynamics; practical aspects of paleoecological data collection, statistical analysis, modeling. Prerequisites: two courses in geoscience, biology, environmental sciences, anthropology, or geography; or consent of instructor.

012:171 Evolution of Plants
Evolutionary history of plants over geologic time: relationships, morphology, and fossil record of major plant lineages; patterns and processes in evolution of plant morphology and diversity; ecological innovations and evolution of terrestrial ecosystems; relationships between biotic and environmental change; paleobotanical tools in stratigraphy, paleoclimatology, sedimentology; practical aspects of paleobotanical data collection, statistical analysis, modeling; field trip. Prerequisites: two courses in geoscience, anthropology, biology, environmental science, or geography; or consent of instructor.

012:172 Glacial and Pleistocene Geology
Introduction to glaciers and glacial and interglacial Earth systems; linkages among glacial, oceanic, and atmospheric systems and their effects on landscapes and biota over the past two million years; how oceans, atmosphere, and glaciers interact and landscape effects of past glacial and interglacial cycles. Prerequisite: physical geology or physical geography or anthropology.

012:173 Quaternary Environments
Archaeological, botanical, zoological, physical, chemical means of reconstructing glacial and interglacial environments; techniques, results; interdisciplinary approach; field trips. Prerequisite: consent of instructor. Same as 044:183.

012:174 Seminar: Taphonomy
Taphonomy (study of fossil record in paleontology and archaeology); processes for accumulation, modification, and deposition of remains in prehistory; instruction by archaeologist and paleontologist. Prerequisite: graduate standing or consent of instructor. Same as 113:174.
012:175 Mineral and Petroleum Exploration Geology 3 s.h.
Fundamentals of resource exploration philosophy and methods, with project-based presentation of techniques and strategies for mineral exploration and petroleum exploration; integration and evaluation of geological, geochemical, and geophysical techniques for mineral exploration; hydrocarbon systems and seismic interpretation for petroleum exploration. Corequisites: 012:052 and 012:092.

012:178 Applied Geostatistics 3 s.h.
Applications of geostatistical methods to geology, geography, hydrology, environmental sciences, and engineering; variogram, Kriging, analysis of spatial-varied data with varied computer software in participants' specialties. Same as 044:188.

012:179 Geology for Engineers 3 s.h.
Introduction to the concepts of geology, earth materials, and earth processes as they relate to civil and environmental engineering practice; physical properties of rock and soil, hydrogeology and biogeochemistry of groundwater aquifers, hydrological and watershed processes. Prerequisite: engineering sophomore standing. Same as 053:105.

012:180 Survey of Geophysical Methods 3 s.h.
Geophysical methods used to address geological and engineering problems (e.g., finding petroleum and mineral deposits, studying groundwater resources, tracing contaminant plumes, evaluating archaeological sites); methods including gravity, magnetics, radiometrics, refraction and reflection seismography, geophysical well logging, and geoelectrical methods (direct current, frequency- and time-domain electromagnetics, induced polarization, magnetic resonance surveying, ground-penetrating radar); capabilities, drawbacks, costs; planning and budgeting surveys, processing the resulting digital data. Prerequisite: introductory geology or physics.

012:184 Groundwater Modeling 3 s.h.
Groundwater flow and contaminant transport modeling; numerical methods, applications of groundwater modeling to water supply, groundwater resources evaluation, remediation design using software; GMS (MODFLOW, MODPATH, and MT3D). Prerequisites: 012:166 or 053:103, and 22M:026. Same as 053:104.

012:185 Approaches to Geoarchaeology 3 s.h.
Geoarchaeology as multidisciplinary contextual framework for human paleoecology; natural processes that create the archaeological record, approaches to reconstructing landscapes of the past as a context for archaeological deposits; weekend field trip. Prerequisite: 012:136 or 012:172 or 113:161 or 113:164 or consent of instructor. Same as 113:189.

012:186 Contaminant Hydrogeology 3 s.h.
Physical and chemical processes that govern mass transport, transformations, retardation, and attenuation of contaminants in groundwater; survey of sampling, monitoring, and groundwater remediation techniques; analytical and numerical solutions of equations using spreadsheets, computers. Same as 053:186.

012:188 Environmental Seminar 1 s.h.
Lectures on the environment by faculty members from the University, other colleges and universities, researchers and professionals from state and federal agencies.

012:189 Global Change Seminar 1-2 s.h.
Current global change issues, including climate change, ecosystem changes and conservation, energy; seminar format with student presentations.

012:190 Undergraduate Geoscience Colloquium 1-2 s.h.
Presentation and discussion of current research by undergraduates. Prerequisite: consent of instructor.

012:191 Geotectonics 3 s.h.
Dynamic processes responsible for crustal genesis, plate movements, mountain building; plate boundary zones; sedimentologic, structural, petrologic, geophysical characteristics of major tectonic settings; multidisciplinary approach; week-long field trip. Prerequisite: 012:092.

012:193 Sustainability Project arr.
Individual or group sustainability project supervised by a faculty member; regular meetings, data collection and interpretation, final project report. Prerequisite: consent of instructor.

012:194 Environmental Field Methods 3 s.h.
Integrated, comprehensive, field-based overview of environmental sampling concepts and methods for geoscience and hydroscience. Three weeks. Same as 159:194.

**012:196 Advanced Subsurface Hydrology** 3 s.h.
Basic and advanced concepts in subsurface fluid mechanics, well hydraulics, methods to characterize and model spatial variability, numerical modeling, and mathematical methods in hydrogeology. Prerequisite: 012:166 or engineering equivalent. Corequisites: 012:187 or 053:181, and 012:186 or 053:186. Same as 053:196.

**Primarily for Graduate Students**

**012:201 Geoscience Seminar Series** 1 s.h.
Scholarly work and research in geoscience. Repeatable.

**012:207 Geologic Orientation** 1 s.h.
Department degree requirements, programs; field survey of local geology; tips for TAs; introduction to specialized facilities; for new graduate students.

**012:210 Hydrogeology Seminar** 3 s.h.
Innovative experimental and modeling studies in hydrogeology; experimental need, design, mathematical formulation, assumptions, data collection techniques; data analysis and its importance to groundwater modeling. Prerequisite: 012:166 or consent of instructor. Same as 053:215.

**012:225 Paleontology Seminar** 1-3 s.h.

**012:233 Carbonate Petrology** 2 s.h.
Identification of constituents and interpretation of genesis, structures, environments of formation, and patterns and processes of diagenesis in limestones; laboratory-based. Prerequisite: familiarity with optical microscope and sedimentation principles.

**012:235 Depositional Environments** 3-4 s.h.
Modern patterns of sedimentation; emphasis on interpreting depositional environments of ancient sedimentary rocks and deciphering resulting stratigraphic patterns. Prerequisite: knowledge of basic sedimentary geology and paleontology.

**012:238 Process Geomorphology** 1-3 s.h.
Topics in process geomorphology ranging from fluvial dynamics to mass movement to sediment transport and related environmental processes. Repeatable. Prerequisite: consent of instructor.

**012:239 Advanced Watershed Analysis Seminar** 1-3 s.h.
Integration of existing knowledge of physical, hydrological, and environmental processes with management issues and challenges in water resources and environmental management; aspects of water quantity and quality, water use and treatment, and basin management issues related to forestry, agriculture, urbanization, floods, droughts. Repeatable.

**012:251 Igneous Petrology** 3 s.h.
Phase equilibria, isotope and trace element geochemistry, geochemical modeling; generation, differentiation of magmas in context of plate tectonic theory. Prerequisite: 012:052 or consent of instructor.

**012:253 Geochronology** 3 s.h.
How to evaluate published ages, and assumptions/errors involved; how to select and sample suitable materials for dating, and choose a suitable dating method and analytical technique; opportunity to develop skills for research and professional careers. Prerequisite: 012:149 or 012:152 or equivalent or consent of instructor.

**012:255 Metamorphic Petrology** 3 s.h.
Nature and origin of metamorphic rocks examined through thermodynamics, experimental data, geologic observations. Prerequisite: 012:052 or consent of instructor.

**012:257 Tectonics and Petrology Seminar** 1-2 s.h.
Topics in tectonics, structural geology, petrology. Repeatable. Prerequisite: consent of instructor.

012:293 Advanced Structural Geology
Kinematic and dynamic analysis of deformed rocks; microstructural analysis; strain analysis, field investigations of highly deformed rocks. Repeatable. Prerequisite: 012:092 or consent of instructor.

012:310 Research: Geoscience
Independent research related to theses or dissertations in geoscience. Repeatable.
German

Chair: Roland Racevskis  
Coordinator: Glenn Ehrstine  
Professors: Sarah M.B. Fagan, Waltraud Maierhofer  
Associate professors: Glenn Ehrstine, Astrid Oesmann  
Associate professors emeriti: Ford B. Parkes, Richard M. Runge  
Assistant professor: Bruce Spencer  
Visiting assistant professor: Colin Benert  
Undergraduate degree: B.A. in German  
Undergraduate nondegree program: Minor in German  
Graduate degrees: M.A., Ph.D. in German  
Web site: http://www.uiowa.edu/~german

The Department of German provides education in the language, literature, and culture traditionally designated as German, as expressed in the language and cultural heritage of Germany, Austria, and Switzerland. Its faculty members engage in research and teaching activities focused on German language, literature, and culture from both disciplinary and interdisciplinary perspectives.

Graduate programs in German build on the department's strengths and those of other departments to provide strong, individualized graduate training. The department is committed to helping students identify and pursue their own historical and theoretical interests in the study of German language and literature. The Master of Arts provides for comprehensive study with a concentration in German literature or Germanic linguistics. The Doctor of Philosophy is highly flexible, allowing students to create their own program of literary, cultural, and linguistic studies.

The department also offers courses approved for General Education in foreign languages, humanities, and foreign civilization and culture; language training for students in other graduate programs; and courses that meet the interdisciplinary needs of undergraduate and graduate students throughout the University.

University graduates with degrees in German frequently enter the teaching profession. They also find positions in government, foreign service, and commercial enterprise.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in German.

Bachelor of Arts

The Bachelor of Arts in German requires a minimum of 120 s.h., including at least 30 s.h. of work for the major. Students who plan to complete the undergraduate teaching major in German in conjunction with the College of Education should see "B.A. with Teacher Licensure" below.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Students who begin a German major with no previous German language experience must complete the following course sequences or their equivalents.

013:011 Elementary German I 4 s.h.
013:012 Elementary German II 4 s.h.
013:021 Intermediate German I 4 s.h.
013:022 Intermediate German II 4 s.h.

This requirement also may be satisfied by various combinations of 013:013 Intensive Elementary German, 013:014 First-Year German Review, and 013:025 Intensive Intermediate German. However, 013:013 Intensive Elementary German and 013:014 First-Year German Review do not count toward the major in German.

The required 30 s.h. for the major must include at least five upper-level German courses taken at The University of Iowa. Students may count a maximum of two Department of German courses taught in English (prefix 13E) toward requirements for the major if they enroll in a section that includes a German language component. Note: 013:101 Introduction to German Literature is prerequisite to all other German literature courses.

013:101 Introduction to German Literature 3 s.h.
013:103 Composition and Conversation I 3 s.h.
013:104 Composition and Conversation II 3 s.h.
013:116 Advanced Composition and Conversation 3 s.h.

Linguistics--one of these:

013:107 Introduction to German Linguistics 3 s.h.
History of the German Language

Culture—one of these:

- 013:105 German Cultural History 3 s.h.
- 013:115 Contemporary German Civilization 3 s.h.

Four 100-level electives offered by the Department of German.

German majors, both graduate and undergraduate, are urged to supplement their degree programs with relevant courses in areas such as German history, philosophy, and business.

**B.A. with Teacher Licensure**

German majors interested in licensure to teach in elementary and/or secondary schools must successfully complete the requirements for a major in German and must be admitted to the College of Education's foreign language teacher education program. Several courses in the College of Education also are required, as is one semester of student teaching in the senior year. Contact the Department of Teaching and Learning for more details.

Students who plan to use a German minor to teach at the elementary and/or secondary level must contact the College of Education concerning requirements.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

**Before the third semester begins:** language competency equal to first-year German and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** language competency equal to second-year German and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** four courses in the major and at least three-quarters of the semester hours required for graduation

**Before the eighth semester:** two to three additional courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

Honors in German is open to exceptional students who are members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). To participate in honors in German, students must have completed three years of college-level German, or the equivalent, with a g.p.a. of at least 3.50 in upper-division German courses.

Participating students register for the following courses.

- 013:190 Honors Program in German 3 s.h.
- 013:191 Honors Research and Thesis 3 s.h.

Honors students are expected to engage in readings and discussions in German literature and culture and to write essays in German and English. Students meet with their faculty director of studies on a regular basis.

The program concludes with presentation of an honors thesis to a faculty committee of at least three members.

**Minor**

The minor in German requires a minimum of 15 s.h. in college-level German courses, including 12 s.h. in 100-level courses taken at The University of Iowa; however, students may count up to 6 s.h. earned in study abroad at a university in a German-speaking country toward the minor. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

All Department of German courses taught in German and numbered 013:100 and above count toward the minor. Students may count one German course taught in English (prefix 13E) toward the minor if they enroll in a section that includes a German language component.
Language for Nonmajors

The department offers a number of opportunities for students who wish to study German. Students who have had experience with the language should take the Foreign Language Placement Test in German online, offered by Evaluation and Examination Service. The test helps determine the level at which a student should begin German language study at The University of Iowa.

Students with no background in German should begin their study with 013:011 Elementary German I.

Students who wish to use German to complete the foreign language component of the General Education Program can choose from a number of course sequences. All of the following satisfy the requirement. Students are encouraged to talk with departmental advisors about the varied sequences.

013:013 Intensive Elementary German, 013:021 Intermediate German I, 013:022 Intermediate German II
013:011 Elementary German I, 013:012 Elementary German II, 013:021 Intermediate German I, 013:022 Intermediate German II
013:014 First-Year German Review, 013:021 Intermediate German I, 013:022 Intermediate German II
013:011 Elementary German I, 013:012 Elementary German II, 013:025 Intensive Intermediate German
013:013 Intensive Elementary German, 013:025 Intensive Intermediate German
013:014 First-Year German Review, 013:025 Intensive Intermediate German

Joint B.A./M.A.

The department offers a joint Bachelor of Arts/Master of Arts for undergraduate majors who plan to earn an M.A. in German. The program permits students to count 12 s.h. of appropriate course work toward both degrees and to enter advanced German courses while they are still undergraduates. It is designed to be completed in five years. Students in the program receive the B.A. when they have satisfied all requirements for the bachelor's degree, and they receive the M.A. when they have completed all master's degree requirements.

The joint B.A./M.A. is appropriate for students who enter the University from high school with advanced German language preparation. It is attractive to highly motivated students who plan to study abroad and who plan to pursue a Ph.D. in German or second language acquisition. It may serve as preparation for other programs, such as those related to international studies, library science, business with an international focus, or international relations. Students seeking careers in teaching or other fields may pursue the joint degree as a credential.

Joint program students must fulfill all requirements for the B.A. They ordinarily spend two semesters in their junior year enrolled in the study abroad program at the University of Freiburg, in Germany (see "Study Abroad" below) unless they have satisfied this requirement another way (e.g., a year abroad during high school or a study abroad program with similar content).

During the last two semesters of their senior year, they may take up to 12 s.h. of graduate-level courses, which may be counted toward both degrees, as follows: 6 s.h. may be counted toward the course requirements for the undergraduate German major, and 6 s.h. may be counted as undergraduate electives. Once they complete all B.A. requirements, they complete the remaining M.A. requirements.

Students must maintain an undergraduate German g.p.a. of at least 3.50; if they fail to meet this standard for more than one semester, they may be required to leave the program. They must have an overall undergraduate g.p.a. of at least 3.00 when they achieve graduate standing.

Applicants must be admitted to the joint program before the beginning of their seventh semester (senior year). They must be University of Iowa undergraduate students; must have completed 80 s.h. or be in the process of completing 90 s.h. of undergraduate work; and must have completed or be in the process of completing at least 21 s.h. of 100-level course work in the German major. They must have completed or be in the process of completing a study abroad program in a German-speaking country, or have satisfied this requirement another way. They also must have a g.p.a. of 3.50 when they apply to the program, or a letter from a Department of German faculty member recommending an exception.

Students pay undergraduate tuition and fees during their first semester in the joint program (normally their seventh semester); beginning with their second semester in the program (normally their eighth semester), they begin paying graduate tuition and fees. Students may hold a graduate appointment beginning with their second semester in the joint program.

Study Abroad

The Department of German participates in an academic year abroad program for undergraduates at the Albert-Ludwigs Universität in Freiburg, Germany. The Freiburg program is offered by a consortium made up of Michigan State University, The University of Iowa, The University of Michigan, and The University of Wisconsin-Madison.
Students arrive during the first week of September and participate in a four-week intensive language program. Then they take a blend of special program classes and regular German university courses. Organized field trips are designed to give students a broader perspective of German culture. Vacation periods permit extensive travel throughout Europe, and students are encouraged to use weekends for shorter trips in the region.

To apply, students must have reached at least junior standing by the beginning of the program, must have completed at least the first four semesters of college German or the equivalent, and must be in good academic standing at a U.S. college or university.

Students earn resident credit in all courses successfully completed in the program. They may count up to 21 s.h. earned at Freiburg toward the major in German. Credit also counts toward the minor in German. Students in other majors should consult with their advisor or their department's undergraduate director.

Contact the Department of German or the Office for Study Abroad for more information.

**Graduate Programs**

The department offers a Master of Arts in German, with and without thesis and with a literature or linguistics concentration; and a Doctor of Philosophy in German, with a literature, linguistics, or combined literature and linguistics concentration. It also offers a joint Bachelor of Arts/Master of Arts for advanced undergraduates; see "Joint B.A./M.A." earlier in this Catalog section.

Courses in the department are offered in two broad categories: German literature (e.g., 013:295 German Literature from Naturalism to Expressionism), and Germanic linguistics (e.g., 013:241 History of the German Language, 013:255 Semantics).

**Master of Arts**

The Master of Arts in German requires a minimum of 33 s.h. of graduate credit. It is offered with and without thesis.

M.A. students choose one of two concentrations: German literature and Germanic linguistics. The German literature concentration requires seven literature courses (21 s.h.) and four linguistics courses (12 s.h.). The Germanic linguistics concentration requires seven linguistics courses (21 s.h.) and four literature courses (12 s.h.).

M.A. students are expected to complete at least 24 s.h. in the Department of German. All M.A. course work taken outside the department requires the graduate advisor's approval.

**Graduate Language Tools: M.A.**

Before taking the M.A. exam, students must demonstrate reading knowledge of a foreign language other than German, at a level equivalent to two years of college study or four years of high school study.

Students may demonstrate competence by submitting proof that they have taken the required course work with a g.p.a. of at least 3.00, or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

**Doctor of Philosophy**

The Doctor of Philosophy in German requires a minimum of 75 s.h. of graduate credit, including at least 27 s.h. in post-M.A. courses and a dissertation. No more than 12 s.h. of post-course-work dissertation credit may be counted toward the degree.

Ph.D. students choose one of three concentrations: German literature, Germanic linguistics, or combined literature and linguistics. In addition to satisfying the course requirements of their concentration, students must develop an independent research program that combines core and specialty areas within their concentration. These areas form the basis for the student's qualifying exam, comprehensive exam, and dissertation.

German literature students must complete five literature courses (15 s.h.) and must earn 12 s.h. of the required 27 s.h. in post-M.A. courses in the Department of German.

Germanic linguistics students must complete at least five linguistics courses (15 s.h.) and must earn 12 s.h. of the required 27 s.h. in post-M.A. courses in the Department of German.

Combined literature and linguistics students must complete at least five concentration area courses (15 s.h.) and must earn 21 s.h. of the required 27 s.h. in post-M.A. courses in the Department of German. They plan the balance of their courses with their advisory committee, generally taking four courses in their dissertation area.

All Ph.D. course work taken outside the department requires the graduate advisor's consent.
CORE AND SPECIALTY READING LISTS

By the end of their second semester in the Ph.D. program, students must have compiled a core area reading list and a specialty area reading list. The expectations for each list vary by concentration.

German Literature Concentration

The core area reading list for the literature concentration comprises 70-100 works that cover at least three genres from a distinct historical period of German literature. For sample reading lists, contact the Department of German.

The specialty area reading list for the literature concentration comprises approximately 40 works from a specific field of literary research: a genre, body of theory, major author(s), or second historical period.

Germanic Linguistics Concentration

The core area reading list for the linguistics concentration comprises lists one and two in all six areas of the Department of German linguistics reading list. Students also select one of the six areas as a specialty concentration for the qualifying exam and assemble a reading list of 10-20 titles from the relevant list three of the linguistics reading list. The linguistics reading list is available from the department's linguistics faculty members.

The specialty area reading list for the linguistics concentration comprises 10-20 titles from list three in one of the six areas of the Department of German linguistics reading list. The specialty list for the comprehensive exam must be in an area different from that for the core area of the qualifying exam.

Literature and Linguistics Concentration

The core area reading list for the combined literature and linguistics concentration comprises 35-50 works of literature in at least two genres from a specific literary period, and all titles from lists one and two in these areas of the Department of German linguistics reading list.

The specialty area reading list for the combined literature and linguistics concentration follows the guidelines for the linguistics or literature specialty area list, depending on the student's preference. The specialty area concentration must be distinct from that of the research paper: students who choose literature as the specialty area write a research paper that concerns linguistics, and those who choose linguistics as the specialty area write a research paper that concerns literature.

Graduate Language Tools: Ph.D.

Students must demonstrate a reading knowledge of two languages determined by the advisor to be pertinent to the student's research interests.

Students may demonstrate competence by submitting proof that they have taken the required course work with a g.p.a. of at least 3.00, or by passing an exam at the fourth-semester college level as determined by the appropriate language department.

QUALIFYING AND COMPREHENSIVE EXAMS

Students prepare five essay questions on the basis of their core area reading list, in consultation with their qualifying exam committee, which approves the final list. The committee selects three of the questions for the student to answer in writing on the exam. Approximately one week after the written exam, the committee and student convene for a one-hour oral exam based on the core area reading list and the student's written exam responses.

No later than two weeks before the oral exam, the student must submit two essays to the comprehensive exam committee. One is a review essay (10-15 pages) that analyzes key issues in a selection of works from the student's specialty area reading list, together with an annotated bibliography that covers titles from the reading list not addressed in the essay. The other is a research essay (25-35 pages) of publishable quality written in consultation with the comprehensive exam committee chair; the essay may be based on a seminar paper of exceptional quality or a potential chapter of the student's dissertation. The student takes a final two-hour oral examination focusing on the review essay and research paper, ordinarily during finals week. After the oral exam, the student produces a written dissertation prospectus for approval by the dissertation committee.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.
Financial Support

Teaching assistantships, research assistantships, and partial tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funke prizes to students of distinction.

Facilities

Students have the opportunity to improve their comprehension and command of German by working with recorded materials in the Language Media Center. They also may benefit from the multimedia courseware and digital video recordings from German television.

An extensive collection of works and periodicals in the University of Iowa Libraries facilitates research in all major areas of German literature and Germanic linguistics and at all levels of study.

The International Crossroads Community is an on-campus housing option for undergraduate and graduate students.

German Courses

Primarily for Undergraduates

013:011 Elementary German I
4 s.h.
Understanding and speaking "everyday German"; reading and writing skills; acquaintance with the German-speaking world through discussion, readings, videos. GE: Foreign Language First Level Proficiency.

013:012 Elementary German II
4 s.h.

013:013 Intensive Elementary German
4-6 s.h.
Elementary German I and II combined in one intensive course. GE: Foreign Language Second Level Proficiency.

013:014 First-Year German Review
5 s.h.
Accelerated course in preparation for third-semester German. Prerequisite: at least two years of high-school German. GE: Foreign Language Second Level Proficiency.

013:021 Intermediate German I
4 s.h.
Proficiency in spoken and written German; German-speaking cultures of central Europe, their historical background; emphasis on refinement of reading skills. Prerequisite: 013:012 or 013:014 or equivalent. GE: Foreign Language Second Level Proficiency.

013:022 Intermediate German II
4 s.h.
Continuation of 013:021. Prerequisite: 013:021 or equivalent. GE: Foreign Language Fourth Level Proficiency.

013:025 Intensive Intermediate German
4-6 s.h.
Intermediate German I and II combined in one intensive course. Prerequisite: 013:012 or 013:013 or 013:014 or equivalent. GE: Foreign Language Fourth Level Proficiency.

013:029 First-Year Seminar in German
1 s.h.
Opportunity to work closely with a faculty member on a topic the faculty member is researching or has expertise; introduction to the intellectual life of the German-speaking world and its presence at The University of Iowa.

For Undergraduate and Graduate Students

013:100 Individual German
arr.
Prerequisite: German major or minor or consent of instructor.

013:101 Introduction to German Literature
3 s.h.
Literary works from various genres. Taught in German. Prerequisite: 013:022 or equivalent.

013:103 Composition and Conversation I
3 s.h.
Active command of German in reading, speaking, writing. Taught in German. Prerequisite: 013:022 or equivalent.

013:104 Composition and Conversation II
Taught in German. Prerequisite: 013:022 or equivalent.

013:105 German Cultural History
Emphasis on development of arts, philosophy, literature. Taught in German. Prerequisite: 013:101 or 013:103 or 013:104 or equivalent. GE: Foreign Civilization & Culture.

013:107 Introduction to German Linguistics
Phonology, morphology, syntax, semantics, historical development. Taught in German. Offered spring semesters of even years. Prerequisite: 013:101 or 013:103 or 013:104 or equivalent.

013:108 The German Media
Reading and listening skills; German culture as portrayed by print media, the web, television. Taught in German. Offered fall semesters of odd years. Prerequisite: 013:101 or 013:103 or 013:104 or equivalent.

013:114 Business German
World of German business, role of German-speaking countries in world trade; emphasis on German business protocol, correspondence. Taught in German. Offered fall semesters of even years. Prerequisite: 013:101 or 013:103 or 013:104 or equivalent.

013:115 Contemporary German Civilization
Government and political structure, economy, mass media, education, social and cultural life of Germany, Austria, Switzerland from the end of World War II to present. Taught in German. Offered spring semesters of odd years. Prerequisites: 013:101 or 013:103 or 013:104 or equivalent. GE: Foreign Civilization & Culture.

013:116 Advanced Composition and Conversation
Speaking and writing. Taught in German. Prerequisites: 013:103 and 013:104, or equivalents; and German undergraduate standing or consent of instructor.

013:117 Current Issues
Current issues in German-speaking countries; topics such as postunification politics, environmental concerns, xenophobia, the cultural scene; readings from contemporary literature and/or media, with focus on expanding students' cultural and linguistic fluency. Taught in German. Prerequisite: 013:101 or 013:103 or equivalent.

013:130 Internship Abroad
Work experience related to student's major field of study; must require significant use of German language in a German-speaking country; must be arranged in collaboration with Pomerantz Career Center.

013:140 Literature in Film
Representative texts of German literature with film adaptations as specific readings. Taught in German. Pre- or corequisite: 013:101.

013:141 Introduction to German Poetry
Introduction to the genre of lyric poetry; how to define what poetry is, how to locate the historicity of lyric poems. Taught in German. Prerequisite: 013:101 or equivalent.

013:142 Twentieth-Century Children's Literature
Introduction to literary epochs and genres in 20th-century German literature, through texts written primarily for children. Prerequisite: 013:101.

013:143 Witch Trials: Fact and Fiction
Historical construction and fictional representation of women and men persecuted as witches and witchmasters in German-speaking countries. Prerequisite: 013:101.

013:144 Self and Other in German Short Fiction
Survey of past 200 years of German short stories and novellas; definition of self against "other"; how narrative reinforces identity of self and delineates difference through conflict, terms in which narrative define self (e.g., moral, psychological, sexual, historical, cultural, political), how it stimulates process of reader identification; how narrative complicates or undermine categories of self and other, sameness and difference; Ludwig Tieck, E.T.A. Hoffmann, Heinrich von Kleist, Gottfried Keller, Thomas Mann, Arthur Schnitzler, Franz Kafka, Ingeborg Bachmann. Taught in German. Corequisite: 013:101 or equivalent.

013:145 Twentieth-Century Literary History in Scenes/Stories 3 s.h.
Short texts of all genres reflecting on the vast historical changes (especially World War I, Third Reich) in 20th-century Germany. Prerequisite: 013:101 or equivalent.

013:150 Beautiful Souls and Scandalous Writing 3 s.h.
Varied works of and about the 18th century; fairy tales, plays, short novels, poems, and other texts by authors such as Lichtenberg, Goethe, Naubert, Schiller, Schlegel, Sueskind; gender roles ascribed to women and men. Prerequisite: 013:101.

013:151 New Literature and Film from Switzerland 3 s.h.
New directions in Swiss literature and film of late 20th and early 21st centuries; genres, authors, and works including youth fiction and biographical fiction by Evelyne Hasler, Gabrielle Alloth, or Corinne Hofmann, a novel by Zoe Jenny, detective fiction by Hansjörg Schneider, popular fiction by Milena Moser; Swiss identity, social and economic issues, migration and immigration, literary works on film, travels to faraway places and times, crosscultural love stories, mystery. Taught in German. Prerequisite: 013:101 or equivalent.

013:165 History of the German Language 3 s.h.
History of the German language; its Indo-European roots, important characteristics of the language's major periods. Prerequisite: 013:101 or 013:103 or 013:104 or equivalent.

013:190 Honors Program in German 3 s.h.
Individual work in literature, linguistics, and culture. Prerequisites: three years of college-level German or equivalent, and a g.p.a. of at least 3.50 in German.

013:191 Honors Research and Thesis 3 s.h.
Prerequisites: 013:190, honors standing, and consent of instructor.

013:198 Undergraduate Special Topics 3 s.h.

013:199 German Graduation Portfolio 0 s.h.
Submission of previous course work and language proficiency scores as a part of the departmental outcomes assessment.

German for Graduate Nonmajors
Graduate students not pursuing a degree in German also may take 013:013 Intensive Elementary German and 013:025 Intensive Intermediate German; see "For Undergraduate and Graduate Students," above.

013:128 German Reading for Graduate Students 4 s.h.
Grammar review, vocabulary building, extensive reading of sophisticated texts. Offered spring semesters. Prerequisites: 013:012 or 013:013 or 013:014 or equivalent, and non-German graduate standing.

For Graduate Students

013:200 Advanced Studies arr.
Special problems in German literature and linguistics. Repeatable. Prerequisite: German graduate standing.

013:220 The German Novel 3 s.h.
Representative works of German fiction from 17th century to present; historical development of the genre, importance of each work for its period. Repeatable.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>013:221</td>
<td>Principles of Teaching and Learning Foreign Languages</td>
<td>3 s.h.</td>
<td>Prerequisite: consent of instructor. Same as 009:234, 039:234, 041:234.</td>
</tr>
<tr>
<td>013:224</td>
<td>The German Drama</td>
<td>3 s.h.</td>
<td>Repeatable.</td>
</tr>
<tr>
<td>013:241</td>
<td>History of the German Language</td>
<td>3 s.h.</td>
<td>Same as 103:231.</td>
</tr>
<tr>
<td>013:243</td>
<td>Early German Theater</td>
<td>3 s.h.</td>
<td>Development of German drama from the 10th to 18th century, beginning with Hrotsvitha of Gandersheim and ending with Johann Christoph Gottsched; the place of theater in contemporary society; the function of religious (passion) and secular (carnival) plays for the late medieval urban community; the role of Protestant plays in spreading religious reform; the purpose of court performance during the Baroque.</td>
</tr>
<tr>
<td>013:253</td>
<td>Multimedia and Second Language Acquisition</td>
<td>3 s.h.</td>
<td>Foreign language multimedia in the context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control, and acquisition of vocabulary, grammar, and culture; multimedia development project. Prerequisite: foreign language teaching methodology course or consent of instructor. Same as 009:238, 035:212, 164:211.</td>
</tr>
<tr>
<td>013:254</td>
<td>Advanced CALL Curriculum Development</td>
<td>3 s.h.</td>
<td>Advanced instruction in a variety of software and hardware tools for development of multimedia computer-assisted language learning (CALL) courseware; students develop software for a General Education Program or third-year language course in collaboration with course supervisor. Prerequisite: 164:212. Same as 009:239, 035:214, 164:214.</td>
</tr>
<tr>
<td>013:255</td>
<td>Semantics</td>
<td>3 s.h.</td>
<td>Meaning in natural language, with focus on German; lexical semantics (sense relations, semantic fields, componential analysis), modality, temporal and spatial deixis, aspect. Same as 164:298.</td>
</tr>
<tr>
<td>013:256</td>
<td>Modern German Syntax</td>
<td>3 s.h.</td>
<td>Analysis of syntax within a generative framework.</td>
</tr>
<tr>
<td>013:257</td>
<td>Morphology</td>
<td>3 s.h.</td>
<td>Word structure and formation in Modern German; inflection, derivation, compounding.</td>
</tr>
<tr>
<td>013:258</td>
<td>Modern German Phonetics and Phonology</td>
<td>3 s.h.</td>
<td>The sounds and sound system of Modern Standard German.</td>
</tr>
<tr>
<td>013:283</td>
<td>The Age of Goethe</td>
<td>3 s.h.</td>
<td>Storm and Stress (Goethe, Schiller, Klinger, Lenz) and the Weimar classicism (1794-1805) of Goethe and Schiller; interdependence of movements and their theoretical basis (Herder, Winckelmann) vis-à-vis representative works.</td>
</tr>
<tr>
<td>013:295</td>
<td>German Literature from Naturalism to Expressionism</td>
<td>3 s.h.</td>
<td></td>
</tr>
<tr>
<td>013:298</td>
<td>Special Topics in German Literature</td>
<td>arr.</td>
<td>Repeatable. Prerequisite: German graduate standing. Same as 048:298.</td>
</tr>
</tbody>
</table>
013:299 Special Topics in German Linguistics 3 s.h.
Repeatable. Same as 103:232, 164:299.

013:300 Master's Thesis arr.

013:350 Pre-Comprehensive Registration arr.

013:371 Seminar in Early German Literature 3 s.h.
Repeatable.

013:400 Ph.D. Dissertation arr.
Repeatable.

**German in Translation**

13E:066 Pact with the Devil 3 s.h.
Pact with the devil as a metaphor for humankind's desire to surpass the limits of knowledge and power in German literature and culture from early modern time to early 20th century; Goethe's Faust, Klaus Mann's Mephisto, Thomas Mann's Doctor Faustus, Weber opera; fascination with the forbidden in regard to women, such as in Meinhold's Amber Witch; the pact in other cultures and in contemporary American literature and culture. Taught in English. Prerequisite: 010:001 or equivalent or consent of instructor. GE: Humanities.

13E:075 Scandinavian Crime Fiction 3 s.h.
Contemporary Scandinavian crime novel in its literary, historical, geographic, cultural, and social context. Taught in English. GE: Humanities.

13E:080 King Arthur Through the Ages 3 s.h.
Representation and function of King Arthur in European literature and film, from Geoffrey of Monmouth's History of the Kings of Britain (ca. 1136) to the present. Taught in English. GE: Humanities.

13E:085 From the Brothers Grimm to Kafka: The Fantastic and Supernatural in German Literature 3 s.h.
Themes of the fantastic and supernatural in German literature; works by well-known authors from 18th century to present (Goethe to Kafka, the Romantics, Magic Flute to Neverending Story) in historical context; writers' struggle to define and maintain themselves through tumultuous social and personal changes. GE: Humanities.

13E:090 Music and the German Imagination 3 s.h.
Role of music in German culture, with focus on German opera; social content of musical experience in a range of genres—literature, criticism, philosophy, opera; music viewed as a public phenomenon or a private experience, interplay between these contrary attitudes from 18th to mid-20th century, their place in concept of Germans as "people of music"; texts by Rousseau, Goethe, E.T.A. Hoffmann, Kleist, Grillparzer, Hegel, A.B. Marx, Mörike, Schopenhauer, Nietzsche, Thomas Mann, Kafka, Hesse, Adorno; operas by Mozart, Wagner, Berg, Brecht, Weill. Taught in English. GE: Foreign Civilization & Culture, Humanities.

13E:118 The Third Reich and Literature 3 s.h.

13E:119 German Film 3 s.h.
Overview 1925-1987; examples of avant-garde films of the Weimar Republic, propagandist filmmaking from the Third Reich, filmmaking traditions of the GDR and FRG. Taught in English. GE: Foreign Civilization & Culture, Humanities.

13E:120 Germany in the World 3 s.h.

13E:126 Germany Since 1914: Weimar, Hitler, and After 3-4 s.h.
Continuity, change in 20th-century German politics, society, culture; creation, collapse of Weimar Republic; Nazism and Third Reich; East and West Germany since 1945; unification and its discontents. GE: Foreign Civilization & Culture. Same as 16E:156.

13E:151 New Literature and Film from Switzerland: Beyond Heidi and Lucerne

arr.

New directions in current Swiss literature and film; recent developments in Swiss society, both in Europe and globally; Swiss-German literature as unique, and as part of German literature.
The Global Health Studies Program examines how dynamic processes of change affect health worldwide. It views health issues and health care in developing and developed countries, including the United States, in light of themes, processes, and institutions that influence health and disease. Among these are technology, culture, politics, religion, legal structure, history, and economy.

The Global Health Studies Program emphasizes career and vocational aspects of global health work. It provides an understanding of related phenomena, such as infections and chronic diseases, fitness and longevity, climate change and natural disasters, environmental hazards, use of illicit and proprietary drugs, interventions against violence, war and injuries, new biomedical technologies, reproductive health and family planning, links between health and human rights, health care services and insurance programs, and non-Western health cultures and alternative therapies.

It also promotes an institutional focus that enables students and faculty members from different departments, colleges, and disciplines University-wide to meet on the common ground of their shared interests in global health issues.

The program attracts undergraduate, graduate, and professional students from a wide range of disciplines: public health, health and pre-health sciences, health economics, nursing, social sciences, environmental engineering, anthropology, history, law, business, journalism, social work, and education.

The program offers the Certificate in Global Health Studies for undergraduate and graduate students and a minor in global health studies for undergraduates.

**Certificate**

The Certificate in Global Health Studies requires 25 s.h. and is open to undergraduate and graduate students. It requires core courses, electives, and health or environmental health-related research, usually in a foreign country. Courses may be chosen from those offered by the Global Health Studies Program (see "Courses" below) and by other departments and programs (see "Approved Electives"). Students may be granted credit toward the certificate for course work they completed up to two years before beginning the program.

Students must maintain a g.p.a. of 3.00 or higher in work for the certificate.

To enter the program, students must already be enrolled at The University of Iowa. To apply, they must complete the certificate program application form, available from the Global Health Studies Program office.

Certificate requirements are as follows.

**CORE COURSES**

Students complete the following.

- 152:111/173:111/175:111 International Health 3 s.h.
- 152:150 Research Design in Global Health (may be repeated for elective credit) 3 s.h.
- 152:151 Proseminar in Global Health 1 s.h.
- 152:152 Global Health Conference (may be repeated for elective credit) 1 s.h.

**ELECTIVES**

Students complete 17 s.h. of approved electives, including at least 9 s.h. in residence at The University of Iowa. Students may petition to take courses not on the approved list (see "Courses" and "Approved Electives"), providing they can show that the courses include substantial material related to global health. Contact the Global Health Studies Program for details.

**FOREIGN STUDY OR RESEARCH**

Students must complete a study or research project of six to eight weeks duration, typically in a foreign setting but under some circumstances in the United States. They may develop and conduct a research project, participate in a health-related study abroad program, assist a faculty member with research, or complete an internship on a global/environmental health issue.

Projects require approval by the Global Health Studies Program steering committee and must be supervised by a
faculty member. Students may apply up to 8 s.h. of academic credit for research or internship experiences to the elective requirement.

Financial support may be available for some projects. Contact the Global Health Studies Program.

**Foreign Language Study**

Students should complete four semesters of modern language study or course work that fulfills or is equivalent to the College of Liberal Arts and Sciences General Education Program foreign language component. This certificate requirement can be waived for students whose first language is not English.

The Global Health Studies Program steering committee may require students to take additional language study in preparation for a research or internship program. Students interested in learning an infrequently taught language to facilitate their participation in a foreign experience should investigate the Autonomous Language Learning Network (ALLNET) of International Programs.

Unless foreign language course work is integral to a study abroad program, it may not count toward the 25 s.h. required for the certificate.

**Public Presentation**

During the semester following the foreign experience, students present their foreign research project results to a special session of 152:150 Research Design in Global Health or to an equivalent public forum, such as a departmental seminar. Students also must submit a two- to three-page project report summarizing their research, study abroad, or internship experiences.

**Approved Electives**

In addition to courses offered by the Global Health Studies Program (see "Courses"), students may use the following courses to complete requirements for the certificate or minor.

**Aging Studies**

153:108 Basic Aspects of Aging 3 s.h.

**Anthropology**

113:133 The Anthropology of Women's Health 3 s.h.
113:136 Applied Anthropology (when topic is environmental and community health) 3 s.h.

**Community and Behavioral Health**

172:130 Social Determinants of Health 3 s.h.
172:150 Health Behavior and Health Education 3 s.h.

**Economics**

06E:113 Health Economics 3 s.h.

**Education**

07B:195 Research in Cross-Cultural Settings 3 s.h.

**History**

16W:140 Disease, Politics, and Health in South Asia 3 s.h.

**Literature, Science, and the Arts**

033:153 Hard Cases: Science Policy and Values (when topic is health related) 3 s.h.
Minor

The minor in global health studies requires a minimum of 15 s.h., including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

The minor is interdisciplinary, designed for undergraduates who wish to study health issues in a global context. It draws on a set of courses offered by the Global Health Studies Program and the Departments of Anthropology, Economics, Geography, History, Sociology, and Psychology; the Program in Literature, Science, and the Arts; and the Colleges of Engineering, Law, Nursing, and Public Health, and the Carver College of Medicine.

Students may choose from those offered by the Global Health Studies Program (see "Courses") or by other departments and programs (see "Approved Electives"). They should choose course work from at least two different disciplines and are strongly encouraged to include a core course from those listed under requirements for the certificate. A period of study abroad focused on global health issues is highly recommended.

Each student's plan of study for the minor is developed according to the student's interests and in consultation with a program advisor.

Activities and Resources

The Global Health Studies Program organizes both on-campus and international activities and research opportunities for students and faculty members, enabling them to become acquainted with major global health issues. Several scholarships, academic fellowships, international fellowships, and research and study abroad programs supplement the global health studies certificate program. These are sponsored by the University and a variety of agencies. Contact the Global Health Studies Program for details.

Global Health Studies Courses

152:111 International Health
Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as 173:111, 175:111.

152:112 Global Environmental Health Policy
3 s.h.

152:120 Global Health and Human Rights
Prerequisite: junior or senior standing or consent of instructor.

152:121 Health of Indigenous Peoples
Health problems and services for indigenous populations worldwide, from perspective of Fourth World postcolonial politics. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 113:121, 149:121.

152:125 Topics in Global Health
1-3 s.h.
152:131 Geography of Health 1-3 s.h.
Provision of health care in selected countries, with particular reference to the Third World; focus on problems of geographical, economic, cultural accessibility to health services; disease ecology, prospective payment systems, privatization, medical pluralism. Same as 044:131.

152:135 Global Health and Global Food 3 s.h.
Practices, patterns, and policies that contribute to the epidemics of obesity, diabetes, and heart disease in wealthy populations; environmental degradation, hunger, and malnutrition among impoverished populations; strategies to meet food and agricultural needs for the world; local/global aspects or perspectives on food/health concerns for Iowa and the international community. Same as 028:135.

152:136 History of Medicine in Western Society 3 s.h.
Theories about the body, illness, medical practice in social, economic, intellectual contexts; role of healers, professionalization of practitioners; evolution of public, private medical institutions; interrelationships of science, medicine, technology. Same as 016:136.

152:137 History of Public Health 3 s.h.
State-endorsed measures to avert or control disease in society. Same as 16W:137.

152:138 History of International Health 3 s.h.
Foremost problems of health and disease in colonial and postcolonial societies; topical approach. Same as 16W:138.

152:150 Research Design in Global Health 2-3 s.h.
Preparation for an international research project. Offered fall and spring semesters.

152:151 Proseminar in Global Health 1 s.h.
Important health problems and issues of a global and interrelated nature that affect the developed and developing world.

152:152 Global Health Conference 1 s.h.
Annual research conference on major global health issues. Prerequisite: conference registration.

152:158 Promoting Health Globally 2 s.h.
Major global health threats (e.g., infectious disease, violence, tobacco, and nutrition); the impact of culture, history, and economics on health disparities and remedies. Prerequisite: junior or senior standing, or certificate student. Same as 028:147.

152:160 Global Health Seminar 3 s.h.
Local and global dimensions of health and disease.

152:162 Principles of Environmental Engineering 4 s.h.
Water supply and treatment processes; wastewater treatment processes; processes for air pollution control, groundwater remediation; solid and hazardous waste management. Prerequisite: 053:050 or consent of instructor. Same as 053:055.

152:170 Health Care and Health Reforms in Russia 3 s.h.
Societal changes and their continuing effect on the Russian health care system since 1991; guest lectures from public health, nursing, medicine, cultural anthropology. Same as 041:104.

152:175 Issues in International Nursing and Health Care 3 s.h.
Same as 096:175.

152:182 Health Experience of Immigrants, Migrants, and Refugees 3 s.h.
Unique health challenges and health care experiences of recent immigrants, refugees, migrants.

152:184 Anthropology and International Health 3 s.h.
Anthropological contributions to and critiques of the international health enterprise; case studies illustrating anthropology and international health's intersection, and their differences. Offered spring semesters. Same as 113:184, 172:131.
152:185 Medical Anthropology 3 s.h.
Major theoretical, methodological approaches; international health and development; biomedicine as a cultural system; ethnomedicine; anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 113:185, 172:173.

152:199 Special Projects in Global Health
Prerequisite: consent of instructor.

152:217 Health Insurance and Managed Care 3 s.h.
History and theory of insurance, comparative health systems, health systems and networks, HMOs, public health insurance, care for uninsured; emphasis on public policy. Prerequisites: 046:263 or 174:212 or equivalent health economics course, and 174:200 or equivalent U.S. health care system course; or consent of instructor. Same as 174:217.

152:252 Environmental Health Policy 3 s.h.
Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Prerequisite: (for 175:252) 175:197 or consent of instructor. Prerequisite: (for 053:204) 053:050. Same as 053:204, 175:252.

152:257 Epidemiology of Infectious Diseases 3 s.h.
Underlying epidemiological concepts of infection disease, including causation and surveillance; prevention and control; case studies. Offered fall semesters. Prerequisite: 173:140 or equivalent. Same as 173:255.
Health and Sport Studies

Chair: Elizabeth Pelton  
Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Kathleen F. Janz (Health and Sport Studies/Epidemiology)  
Professors emeriti: Donald R. Casady, Margaret G. Fox  
Associate professors: Catriona Parratt, Elizabeth Pelton  
Associate professors emeriti: N. Peggy Burke, Christine H.B. Grant, Carolyn Lara-Braud, Jeannette L. Scahill, Bonnie Slatton  
Assistant professor: Kerry McGannan  
Adjunct assistant professor: Sara Imhof  
Visiting assistant professor: Christina Johnson  
Lecturers: Carol Girdler, Katherine Mellen, Jennifer Metz  
Adjunct lecturers: Sarah Hansen, Eva Schoen, Tanya Villhauer  
Adjunct instructors: Amy Fletcher, Pat Kutch, Angela Reams  
Undergraduate degree: B.A. in Health and Sport Studies  
Undergraduate nondegree program: Minor in Health and Sport Studies  
Graduate degrees: M.A., Ph.D. in Health and Sport Studies  
Web site: http://www.uiowa.edu/~hss

The Department of Health and Sport Studies offers programs of study at the undergraduate and graduate level that focus on health, sport, and physical activity as they are influenced by cultural, psychological, and behavioral factors. Graduates work in teaching, research, coaching, health promotion, and sport-related programs.

The department also houses the Health and Physical Activity Skills Program (formerly the Physical Education Skills Program). The Health and Physical Activity Skills Program offers courses that provide instruction and practice in lifetime sports, fitness training, and wellness activities aimed at enhancing physical health and well-being. Health and physical activity skills courses are approved in the health and physical activity area of the General Education Program.

Undergraduate Programs

The department offers a Bachelor of Arts in health and sport studies, with two tracks: health promotion and sport studies. It also offers a minor in health and sport studies.

The undergraduate major in health and sport studies provides students with learning experiences in the promotion of health and the historical and cultural context of sport and physical activity.

Admission to the major is selective.

Bachelor of Arts

The Bachelor of Arts in health and sport studies requires a minimum of 120 s.h., including work for the major, which varies by track. The health promotion track requires 43-50 s.h. of work for the major; the sport studies track requires 45 s.h. of work for the major.

All students majoring in health and sport studies complete the HSS foundation courses and requirements specific to each track; students should complete the foundation courses as early as possible. At least half of all credit in the major must be earned in residence at The University of Iowa. Students must complete the College of Liberal Arts and Sciences General Education Program.

Admission to health and sport studies is selective; students must apply for and be admitted to the major.

Admission and curriculum requirements for each track are listed under "Health Promotion Track" and "Sport Studies Track" below.

Health Promotion Track

Health promotion is a developing discipline committed to improving the health and quality of life of individuals and communities. Health promotion practitioners assess, plan, implement, and evaluate programs that increase health-enhancing behaviors, decrease health risk behaviors, and create environments that support healthy lifestyles.

The health promotion track integrates the theory and applied study of health education with the biological, behavioral, and social factors that affect health. Its content emphases include exercise prescription, active living, dietary assessment, and healthy eating. The curriculum blends natural science and social science approaches to focus on empowering individuals and building healthy communities through changes in lifestyle and the environment.

Community and clinical practicum experiences give students the opportunity to apply health promotion concepts and skills. Supervised capstone internships are available in a variety of organizational settings, both nationally and internationally.

Health promotion courses address certification competencies of the most prestigious national health promotion organizations. Certification competencies include the American College of Sports Medicine (ACSM) Health Fitness Instructor and the ACSM Personal Trainer; the National Strength and Conditioning Association (NSCA)--Certified Strength and Conditioning Specialist; and the National Commission for Health Education Credentialing Certified Health
Education Specialist (CHES).

Health promotion track graduates have a strong foundation for a variety of careers. They are prepared for health promotion positions in hospital- and corporate-based wellness programs, nonprofit health agencies, commercial fitness enterprises, municipal recreation programs, and federal and state health promotion agencies. Employment opportunities in these sectors have been good to excellent and are projected to increase according to the U.S. Department of Labor. The curriculum's rigor also prepares students for graduate study in other academic disciplines, including public health, and provides excellent preparation for professional study in health professions such as physical therapy and occupational therapy.

Students must apply for admission to the health promotion track. Applicants must have completed a minimum of 24 s.h. at The University of Iowa, including the prerequisite courses for admission listed below; transfer students must have completed a minimum of 12 s.h. at The University of Iowa and must have completed the same prerequisite course work in chemistry, biology, anatomy, and statistics.

Applicants to the health promotion track must have a cumulative g.p.a. of at least 2.70 and a University of Iowa g.p.a. of at least 2.70; having the required grade-point average does not guarantee admission to the track. Students with a cumulative or University of Iowa g.p.a. lower than 2.70 may apply for exceptional admission.

The following courses are prerequisites for admission to the health promotion track. The department determines whether to accept equivalent or higher-level courses that address the same content areas.

Biology—one of these:
- 002:002 Introductory Animal Biology 4 s.h.
- 002:010 Principles of Biology I 4 s.h.
- 002:021 Human Biology 4 s.h.

Chemistry—two of these:
- 004:007 General Chemistry I 3 s.h.
  or
- 004:011 Principles of Chemistry I 4 s.h.
- 004:008 General Chemistry II 3 s.h.
  or
- 004:012 Principles of Chemistry II 4 s.h.

Statistics/mathematics—one of these:
- 22S:008 Statistics for Business 4 s.h.
- 22S:025 Elementary Statistics and Inference 3 s.h.
- 22S:030 Statistical Methods and Computing 3 s.h.
- 22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- 22S:101 Biostatistics 3 s.h.
- 22S:102 Introduction to Statistical Methods 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.
- 22M:015 Mathematics for the Biological Sciences 4 s.h.
- 22M:016 Calculus for the Biological Sciences 4 s.h.
- 22M:017 Calculus and Matrix Algebra for Business 4 s.h.
- 22M:025 Calculus I 4 s.h.
- 22M:026 Calculus II 4 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.

Anatomy—one of these:
- 027:053 Human Anatomy 3 s.h.
- 027:150 Gross Anatomy for Integrative Physiology 3 s.h.
- 060:113 Human Anatomy Online 4 s.h.
- 060:110 Principles of Human Anatomy 3 s.h.
Students must complete the application form for the health promotion track, available on the Department of Health and Sport Studies web site (see Undergraduate Programs). Applications must be submitted to the director of undergraduate studies by October 15 for admission the following spring semester or by March 15 for admission the following fall semester.

Once students are admitted to the health promotion track, they should plan on at least three semesters of study to complete the requirements for the major.

Because health promotion is a highly interdisciplinary field, students are encouraged to pursue concentrated study in another area. They may earn one or more minors, a second major, or a certificate; or they may complete a cluster of courses related to study in a professional health program. Examples of minors and second majors related to health promotion include psychology, sociology, biology, integrative physiology, geography, and Spanish. Related certificates include the Certificate in Entrepreneurial Management, the Certificate in Aging Studies, and the Certificate in Global Health Studies.

Course work for the major in health and sport studies with health promotion track includes HSS foundation courses, the health promotion core, approved electives, and an internship option.

Students select approved elective courses in specialized content areas such as stress management, tobacco and alcohol, health communications, facility-based management, small business management, aging studies, and global health studies. These content areas allow students to tailor their health promotion program to specific interests and career paths.

The internship option is a capstone experience that provides students with community and clinical practicum experiences, giving them additional opportunities to apply health promotion concepts and skills. Supervised academic internships are available in a variety of organizational settings, both nationally and internationally.

The major in health and sport studies with health promotion track requires the following course work.

**HSS FOUNDATION COURSES**

Students should complete the HSS foundation courses as early as possible; all three are required (9 s.h.).

- 028:036 Physical Activity Through the Life Span 3 s.h.
- 028:074 Inequality in Sport 3 s.h.
- 028:076 Psychological Aspects of Sport and Physical Activity 3 s.h.

Once a student has declared a major in health and sport studies, he or she may not use Guided Independent Study courses to meet the HSS foundation course requirement. Once a transfer student has declared a major in health and sport studies, he or she may not use a course previously completed at another institution to meet the HSS foundation course requirement, unless a substitution is granted. Students who wish to substitute a transfer course for an HSS foundation course must complete a Request for Substitution of Courses form, available at the department office. Substitutions are granted only on the basis of course content duplication.

**HEALTH PROMOTION: CORE**

All of these (22 s.h.):

- 027:140 Exercise Physiology for Practitioners 3 s.h.
- 028:038 Understanding Food and Nutrition 3 s.h.
- 028:075 Health in Everyday Life 3 s.h.
- 028:138 Exercise Testing and Prescription 4 s.h.
- 028:141 Health Promotion Theory and Practice 3 s.h.
- 028:142 Worksite Health Promotion 3 s.h.
- 028:145 Health Promotion Processes 3 s.h.

**HEALTH PROMOTION: ELECTIVES**

Students complete 12 s.h. selected from the following list of approved electives; or they complete the internship option, which consists of 6 s.h. chosen from the following list plus 028:190 Preinternship Seminar and 028:191 Internship. In order to be eligible for an internship, students must earn a grade of C-minus or higher in each of their health promotion core and elective courses.
06T:120 Entrepreneurship and Innovation  3 s.h.
07C:130 Human Sexuality  3 s.h.
07C:185 Introduction to Substance Abuse  3 s.h.
028:020 Alcohol and Your College Experience  1 s.h.
028:021 Tobacco and Your College Experience  1 s.h.
028:022 Resiliency and Your College Experience  1 s.h.
028:023 Food and Your College Experience  1 s.h.
028:030 Principles of an Exercise Class  2 s.h.
028:031 Health-Related Muscular Fitness  2 s.h.
028:077 Understanding Peak Performance in Sport  2 s.h.
028:132 Fitness/Sport Nutrition  3 s.h.
028:133 Nutrition Through the Life Span  3 s.h.
028:134 Nutrition Intervention  3 s.h.
028:135 Global Health and Global Food  3 s.h.
028:143 Communicating Health and Physical Activity  3 s.h.
028:144 Peer Health Education  2 s.h.
028:147 Promoting Health Globally  2 s.h.
028:148 Practicum in Health Promotion  1-2 s.h.
028:166 Exercise for Special Populations  1 s.h.
028:174 Understanding Stress and Coping  3 s.h.
028:190 Preinternship Seminar (may be taken as an elective if not completing the internship option)  1 s.h.
028:194 Honors Readings  1-2 s.h.
028:195 Honors Problems  3-4 s.h.
071:120 Drugs: Their Nature, Action, and Use  2 s.h.
071:130 Drug Mechanisms and Actions  3 s.h.
152:152 Global Health Conference  1 s.h.
152:160 Global Health Seminar  3 s.h.

Health Promotion: Internship Option

Courses chosen from the preceding list of electives above  6 s.h.
028:190 Preinternship Seminar  1 s.h.
028:191 Internship  arr.

Sport Studies Track

The sport studies track is for students who want to examine sport in its historical and contemporary cultural contexts. Course work in history, sociology, and psychology of sport and physical activity provides students with the critical skills necessary to understand sport as a significant aspect of cultural life. Sport's interactions with educational institutions, the media, the economy, and the political system are examined critically. The sport studies track also explores race, class, and gender differences in the sport experience.

Many students use their experience in the program to prepare for graduate school. For others, the required second concentration area or minor serves as an introduction to careers in a number of fields, such as sport journalism and athletic administration.

Students must apply for admission to the sport studies track. Applicants must have completed a minimum of 24 s.h. of course work, including 12 s.h. at The University of Iowa. They must have a cumulative g.p.a. of at least 2.50 and a University of Iowa g.p.a. of at least 2.50. They also must have satisfactorily completed 028:074 Inequality in Sport.

Applicants must complete the application form for the sport studies track, available on the Department of Health and Sport Studies web site (see Undergraduate Programs). They must submit a personal statement (one or two pages, typed, double-spaced), detailing the applicant's interest in the health and sport studies major and in the sport studies track.

Applications must be submitted to the director of undergraduate studies by October 15 for admission the following spring semester or by March 15 for admission the following fall semester.

Applications may be submitted during the semester in which the student completes the number of semester hours and/or the prerequisite course work required for admission to the track. In such cases, admission decisions are pending until the work in progress is completed.

Applicants who have a cumulative g.p.a. of 2.80 or above and who meet all other admission criteria are admitted to the
track, but they must complete the application process.

Students who believe they qualify for exceptional admission should submit a written appeal and any other supporting documentation or evidence that may be relevant to their appeal for admission to the sport studies track.

Course work for the major in health and sport studies with sport studies track includes HSS foundation courses, the sport studies core (one course from each of four content areas), approved electives, and a second concentration area or a minor. Requirements are as follows.

**HSS FOUNDATION COURSES**

Students should complete the HSS foundation courses as early as possible; all three are required (9 s.h.).

028:036 Physical Activity Through the Life Span 3 s.h.
028:074 Inequality in Sport 3 s.h.
028:076 Psychological Aspects of Sport and Physical Activity 3 s.h.

Once a student has declared a major in health and sport studies, he or she may not use Guided Independent Study courses to meet the HSS foundation course requirement. Once a transfer student has declared a major in health and sport studies, he or she may not use a course previously completed at another institution to meet the HSS foundation course requirement, unless a substitution is granted. Students who wish to substitute a transfer course for an HSS foundation course must complete a Request for Substitution of Courses form, available at the department office. Substitutions are granted only on the basis of course content duplication.

**Sport Studies: Core**

Students must complete one course from each of four content areas (total of 12 s.h.).

**Diversity in Sport**

One of these:

028:078 Women, Sport, and Culture 3 s.h.
028:079 Race and Ethnicity in Sport 3 s.h.

**International Dimensions**

One of these:

028:072 The Olympics: Ancient and Modern 3 s.h.
028:176 Sport and Nationalism 3 s.h.
028:177 Western World Sport: Greeks to Present 3 s.h.

**Contemporary Sport**

One of these:

028:175 Sport and the Media 3 s.h.
028:188 Twentieth-Century U.S. Sport 3 s.h.

**History of Sport and Leisure in the United States**

One of these:

028:171 History of Baseball in America 3 s.h.
028:172 History of Intercollegiate Athletics 3 s.h.
028:178 Sport in the U.S. to 1900 3 s.h.
028:179 The American Vacation 3 s.h.
SPORT STUDIES: ELECTIVES

Students must complete at least 9 s.h. of approved elective courses offered by the Department of Health and Sport Studies. Courses from the following list and courses that were not used to fulfill the sports studies core, above, are recommended.

- **028:077 Understanding Peak Performance in Sport** 2 s.h.
- **028:143 Communicating Health and Physical Activity** 3 s.h.
- **028:147 Promoting Health Globally** 2 s.h.
- **028:174 Understanding Stress and Coping** 3 s.h.
- **028:180 Theory and Ethics of Coaching** 3 s.h.
- **028:193 Independent Study** arr.
- **028:194 Honors Readings** 1-2 s.h.
- **028:195 Honors Problems** 3-4 s.h.

Sport Studies: CONCENTRATION or Minor

Students in the sport studies track must complete a concentration in an area, program, or department outside health and sport studies (e.g., American studies, women’s studies, the Tippie College of Business, journalism and mass communication). The concentration requires 15 s.h. including 6 s.h. earned in 100-level courses or lower-level courses that are designated as advanced-level courses by the department or program that offers them. Students must select the concentration area in consultation with their advisor, and they must have their advisor’s written approval of the concentration. Courses taken for the concentration may not be taken pass/nonpass.

Students may elect to satisfy the concentration requirement by earning a minor in another discipline. It is the student’s responsibility to ensure that he or she has satisfied the requirements for the minor.

B.A. with Coaching Authorization or Endorsement

Individuals who seek athletic coaching certification in the State of Iowa must complete requirements set by the Iowa Board of Educational Examiners. The coaching authorization credential is open to all eligible persons who have completed the required course work. The coaching endorsement credential is available only to teachers. Courses that satisfy the required course work for both coaching authorization and coaching endorsement include the following.

- **027:053 Human Anatomy** 3 s.h.
- **027:057 Basic Athletic Training** 3 s.h.
- **027:117 Human Growth and Motor Development** 3 s.h.
- **028:180 Theory and Ethics of Coaching** 3 s.h.

Students should take **027:053 Human Anatomy** and obtain first-aid certification before they take **027:057 Basic Athletic Training**.

The following courses are highly recommended, but not required.

- **027:056 First Aid and CPR** 2 s.h.
- **027:140 Exercise Physiology for Practitioners** 3 s.h.

In addition, it is highly recommended that students obtain practical coaching experience. Such experience may be available through local public and private schools, recreation departments, and community groups.

For more information about coaching authorization or endorsement credentials, visit the Iowa Board of Educational Examiners web site.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the health and sport studies major. Students should work with their advisors to develop an individual graduation plan.

Honors

The Department of Health and Sport Studies is committed to offering high-quality academic opportunities to students.
One of those opportunities is honors study in the discipline. In order to graduate with honors in health and sport studies, students must go beyond the basic requirements of the major to demonstrate advanced understanding and skill development in sport, physical activity, and health promotion. They also must be members of the University of Iowa Honors Program.

Students must meet the following requirements in order to graduate with honors:

- maintain a g.p.a. of at least 3.33 in all University of Iowa and health and sport studies course work;
- successfully complete a health and sport studies honors designation course, research practicum, teaching practicum, or service learning course;
- successfully complete 028:194 Honors Readings (1-2 s.h.) under the supervision of a health and sport studies faculty member;
- successfully complete 028:195 Honors Problems (3-4 s.h.) under the supervision of a health and sport studies faculty member; in this course, students write an honors thesis, usually based on original research or creative work; and
- make an oral or poster presentation of the honors thesis in an approved venue, such as a department research seminar or a professional conference.

Minor

The minor in health and sport studies requires a minimum of 15 s.h. in courses offered by the University of Iowa Department of Health and Sport Studies with prefix 028, including 6 s.h. in 100-level courses. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students select courses for the minor according to their interests and the recommendation of the undergraduate coordinator.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in health and sport studies, both with two specialization areas: psychology of sport and physical activity, and sport studies. The department's graduate programs feature an interdisciplinary and multidisciplinary approach to curriculum and scholarship.

The psychology of sport and physical activity specialization integrates examination of the psychosocial aspects of participation in sport and physical activity with analysis of the health consequences of a sedentary lifestyle. The sport studies specialization takes a critical cultural studies approach to understanding sport in its historical and contemporary contexts.

Master of Arts

The Master of Arts in health and sport studies requires a minimum of 37 s.h. of graduate credit. The thesis option requires 31 s.h. of course work and 6 s.h. of thesis credit; the nonthesis option requires 37 s.h. of course work. The program offers specialization areas in psychology of sport and physical activity, and sport studies. Students in the psychology of sport and physical activity specialization may choose an emphasis in sport psychology or health promotion. The sport studies program focuses on cultural studies and the history of sport.

All M.A. students must complete a group of foundation courses, supplemented with work in their specialization area.

FOUNDATION COURSES

- 028:202 Critical Perspectives: 3 s.h.
- 028:204 Research Methodologies: 3 s.h.
- 028:300 Research Colloquium: 0-1 s.h.
- A graduate-level course in statistics or cultural analysis: 3 s.h.

Psychology of Sport and Physical Activity Specialization

The psychology of sport and physical activity specialization focuses on the dynamic interaction of psychological, cultural, and behavioral processes that inform and explain behavior in sport, health, and physical activity. The curriculum integrates the psychosocial aspects of participation in sport and physical activity with an analysis of the health consequences of a sedentary lifestyle.

In addition to providing a theoretical framework for understanding sport and health-related behavior, the specialization provides students with an opportunity to develop skills in exercise prescription and assessment, dietary assessment, and stress management. Practicums are available at the University of Iowa Student Health Service, University of Iowa...
Hospitals and Clinics, Johnson County Public Health, and local community agencies.

Graduates go on to doctoral programs in sport, health, or associated fields, or they enter health promotion, athletic, or sport professions in government, nonprofit organizations, and business.

**Sport Studies Specialization**

Sport studies is an interdisciplinary program that draws on the insights of history, sociology, philosophy, and psychology to produce analyses of health, sport, and physical activity. Students supplement departmental course work with courses in other departments, such as American studies, African American studies, communication studies, women's studies, history, psychology, sociology, and business. Most graduates go on to doctoral study in cultural studies of sport or history of sport. The M.A. program also provides excellent theoretical grounding for doctoral work in athletic administration, sport management, or law.

**Doctor of Philosophy**

The Doctor of Philosophy in health and sport studies requires a minimum of 72 s.h. of graduate credit, with 66 s.h. beyond the master's degree.

The program offers two areas of specialization: psychology of sport and physical activity, and sport studies.

Most students enter the doctoral program after completing a master's degree.

All doctoral students must satisfy the residency requirement by enrolling as full-time students (minimum of 9 s.h.) for two semesters, or by enrolling in 6 s.h. for three semesters while holding an assistantship of one-third-time or more.

In addition, all doctoral students must complete the following three foundation courses, at least 3 s.h. of course work in advanced research methodologies, and a dissertation.

**FOUNDATION COURSES**

- 028:202 Critical Perspectives 3 s.h.
- 028:204 Research Methodologies 3 s.h.
- 028:300 Research Colloquium (total of 3 s.h.) 0-1 s.h.

**Psychology of Sport and Physical Activity Specialization**

The psychology of sport and physical activity specialization focuses on psychological processes as they interact with social and cultural forces. Scholarship in this program advances understanding of behavior in sport and physical activity through evaluation of theories that predict behavior and through testing interventions that promote sport and physical activity. Interdepartmental study is central to the program; students may select course work in psychology, epidemiology, counselor education, and women's studies. The program provides students with the analytical and research skills necessary for teaching and scholarship at the university level.

**Sport Studies Specialization**

The sport studies specialization is an interdisciplinary program, grounded in sport history and cultural studies. It explores sport with insights from history, sociology, and the humanities as well as interdisciplinary fields such as American studies, African American studies, communication studies, and women's studies. Students develop analytical skills in order to produce research and cultural criticism of sport, leisure, dance, and physical activity. Careers in scholarship and teaching are the usual outcomes of this curriculum.

**Assistantships**

The department offers teaching assistantships and research assistantships. Teaching assistants teach health and physical activity skills courses, or they support undergraduate courses offered by the departments. Research assistants work directly with faculty members to support research programs. Apply to the Department of Health and Sport Studies chair.

**Health and Sport Studies Courses**

**028:020 Alcohol and Your College Experience** 1 s.h.

Patterns of alcohol, drug use focused on college years; strategies for monitoring use, behavioral change plans for implementing lower-risk drinking practices; for drinkers and non-drinkers. GE: Health and Physical Activity.
028:021 Tobacco and Your College Experience
1 s.h.
Current behavior change theories related to tobacco use, cessation; nicotine replacement therapies (NRT), non-NRT methods; triggers, relapse prevention, cognitive behavioral skills, support systems; for smokers and non-smokers. GE: Health and Physical Activity.

028:022 Resiliency and Your College Experience
1 s.h.
Resiliency and psychological hardiness theories relevant to college life; resiliency and ability to cope with challenges; components of psychological fitness; skills for personal growth and emotional well-being. GE: Health and Physical Activity.

028:023 Food and Your College Experience
1 s.h.
Sociocultural perspective on the forces that facilitate "junk" diets, particularly during young adulthood; basic components of nutrition; opportunity to develop skills in diet planning and healthy eating.

028:029 First-Year Seminar
1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

028:030 Principles of an Exercise Class
2 s.h.

028:031 Health-Related Muscular Fitness
2 s.h.
Educational and practical experience for designing resistance training and flexibility programs; competencies for certification with National Strength and Conditioning Association.

028:032 First Aid and CPR
2 s.h.
Leads to American Red Cross first aid and adult CPR certifications.

028:036 Physical Activity Through the Life Span
3 s.h.
Physical activity determinants in society; school, workplace, community-based health promotion interventions to improve activity levels; practicum experiences. GE: Health and Physical Activity.

028:038 Understanding Food and Nutrition
3 s.h.
Physiology, biochemistry of human nutrition; appropriate food sources; qualitative and quantitative evaluation of diets using standard references. Prerequisite: health and sport studies major.

028:072 The Olympics: Ancient and Modern
3 s.h.
Origins and development of the ancient and modern Olympics; the Olympic spirit, political and religious contexts, and athletics through literature and material culture. Same as 20E:076.

028:074 Inequality in Sport
3 s.h.
Sport experiences, barriers to participation based on sexism, racism, classism, ageism, heterosexualism. Prerequisite: health and sport studies major.

028:075 Health in Everyday Life
3 s.h.
Personal health strategies; focus on disease prevention, wellness.

028:076 Psychological Aspects of Sport and Physical Activity
3 s.h.
Psychological theory and research related to sport and physical activity; motivation, aggression, attribution, socialization, competitive anxiety, leadership.

028:077 Understanding Peak Performance in Sport
2 s.h.
Concepts that underlie peak performance; hands-on experience through lecture/discussion, overnight assignments, activities; understanding of how to achieve peak performance in sport and physical activity, other areas of life.

028:078 Women, Sport, and Culture
3 s.h.
Feminist analysis of girls' and women's sport experiences; reproduction of gender through sport, recent changes in women's intercollegiate athletics, media representations of women in sport, feminist critiques, alternatives to sport. Same as 131:078.

028:079 Race and Ethnicity in Sport 3 s.h.
Structural and ideological barriers to racial and ethnic equality in sport, with focus on African American sport experiences; historical and contemporary issues, media representations. Same as 129:079.

028:132 Fitness/Sport Nutrition 3 s.h.
Relationship between nutrition, fitness and sport performance; basic nutrition, physiology, chemistry, psychology, food preparation. Prerequisites: 028:038 and health and sport studies major.

028:133 Nutrition Through the Life Span 3 s.h.
How body processes and nutritional needs change with age and the physiological state; effects of food-drug-medication interactions, anorexia, bulimia, and adolescent pregnancy; emphasis on food and health habits that minimize nutrition-related problems. Prerequisites: (for 028:133) 028:038 and health and sport studies major. Prerequisite: (for 153:133) 028:038. Same as 153:133.

028:134 Nutrition Intervention 3 s.h.
Strategies for meeting unique nutritional needs of individuals with limitations imposed by genetics, trauma, aging, medications, and so forth. Prerequisites: 028:038 and health and sport studies major.

028:135 Global Health and Global Food 3 s.h.
Practices, patterns, and policies that contribute to the epidemics of obesity, diabetes, and heart disease in wealthy populations; environmental degradation, hunger, and malnutrition among impoverished populations; strategies to meet food and agricultural needs for the world; local/global aspects or perspectives on food/health concerns for Iowa and the international community. Same as 152:135.

028:138 Exercise Testing and Prescription 4 s.h.
Basic techniques in physical fitness assessment, prescription of exercise for healthy and unhealthy adults, promotion of physical activity within communities; provides knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: 027:140 and admission to health promotion program.

028:141 Health Promotion Theory and Practice 3 s.h.
Principles of epidemiology and health behavior theories applied to multilevel frameworks for health promotion. Prerequisite: 028:075.

028:142 Worksite Health Promotion 3 s.h.
Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and work-setting (targeted) health promotion programs.

028:143 Communicating Health and Physical Activity 3 s.h.
Development, implementation, evaluation of effective health communication interventions; identification of health education resources for targeted groups. Prerequisite: health and sport studies major or consent of instructor.

028:144 Peer Health Education 2 s.h.
Experience acting as a peer educator, assisting students in their residential areas, presenting educational outreach programs on health topics, making referrals to campus and area agencies. Prerequisite: consent of instructor.

028:145 Health Promotion Processes 3 s.h.
Assessment, planning, implementation, and evaluation of health promotion programs. Prerequisite: 028:141.

028:147 Promoting Health Globally 2 s.h.
Major global health threats (e.g., infectious disease, violence, tobacco, and nutrition); the impact of culture, history, and economics on health disparities and remedies. Prerequisite: junior or senior standing, or certificate student. Same as 152:158.

028:148 Practicum in Health Promotion 1-2 s.h.
Experience in planning, implementing clinical and community health promotion strategies including nutrition, physical fitness, cardiac rehabilitation, respiratory rehabilitation. Prerequisite: consent of instructor.

028:166 Exercise for Special Populations 1 s.h.
Laboratory experiences in development and implementation of exercise testing and prescription for special populations, including children, elders, and individuals with chronic diseases. Pre- or corequisite: 028:138. Same as 153:166.

028:171 History of Baseball in America 3 s.h.
Forces that influenced political, economic, and social development of professional baseball in the United States; rise of major league baseball, its relationship to the minor leagues, and development of organized baseball industry.

028:172 History of Intercollegiate Athletics 3 s.h.
Forces that influenced political, economic, and social development of intercollegiate athletics; development of the National Collegiate Athletic Association and its relationship to the rise of the Division I conference.

028:174 Understanding Stress and Coping 3 s.h.
Recent theoretical concepts and scientific evidence regarding stress and its effects on body and mind; intervention methods, strategies for managing stress; opportunity for students to use intervention techniques to manage stress. GE: Health and Physical Activity.

028:175 Sport and the Media 3 s.h.
Representations of sport in television, the press, fiction, films, biographies, adolescent fiction.

028:176 Sport and Nationalism 3 s.h.
Role of sport in the phenomenon of nationalism; selected theories; case studies on Ireland, Australia, British West Indies, Cold War U.S., fascist Europe.

028:177 Western World Sport: Greeks to Present 3 s.h.
Development of Western sport; relation to social, political, economic, intellectual factors.

028:178 Sport in the U.S. to 1900 3 s.h.
Growth and institutionalization of sport from colonial times to 1900.

028:179 The American Vacation 3 s.h.
Social history of vacations; cultural significance of contemporary patterns; focus on how experiences and meanings are shaped by race, class, gender. Same as 045:174.

028:180 Theory and Ethics of Coaching 3 s.h.
Philosophical bases, ethical issues; theoretical, practical applications.

028:188 Twentieth-Century U.S. Sport 3 s.h.
Historic development of sport in the United States since 1900; economic forces, professional football and baseball. Prerequisite: 028:178.

028:190 Preinternship Seminar 1 s.h.
Preparation for internship experience.

028:191 Internship arr.
Directed practical field experience; program planning, implementation, evaluation, administrative procedures. Prerequisites: 028:190 and consent of instructor.

028:193 Independent Study arr.
Problem in a specific area. Prerequisite: consent of instructor.

028:194 Honors Readings 1-2 s.h.
Prerequisite: consent of instructor.

028:195 Honors Problems 3-4 s.h.
Prerequisite: consent of instructor.
028:198 Topics
Sport studies or health promotion topics.

1-3 s.h.

028:202 Critical Perspectives
Application of critical theories to cultural meanings and issues of sport, health, physical activity.

3 s.h.

028:204 Research Methodologies
Design, interpretation of research; emphasis on quantitative approaches.

3 s.h.

028:243 Planning and Evaluating Health Interventions
Theoretical and applied aspects of planning and evaluating health interventions in multiple settings, including culturally relevant programming.

3 s.h.

028:244 Seminar in Health and Physical Activity Behavior
Health behavior theories and their relevance to individual, interpersonal, and community-wide health promotion interventions.

3 s.h.

028:249 Epidemiology of Physical Activity
Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as 173:245.

3 s.h.

028:250 Marketing, Finance, and Entrepreneurship
Economic practices, marketing research, promotional programs, financing strategies, entrepreneurship related to collegiate athletics.

3 s.h.

028:256 Governance and Policy Issues in Sport
Institutional, conference, national, and international issues in sport and sport governance; focus on gender equity, Title IX.

3 s.h.

028:257 Nonprofit Organizational Effectiveness I

3 s.h.

028:258 Nonprofit Organizational Effectiveness II
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 024:248, 032:228, 042:248, 06J:248, 091:322, 174:248.

3 s.h.

028:270 Social Psychology of Sport and Physical Activity
Theoretical and applied bases of social psychology of sport and exercise; motivation, arousal, group processes related to sport, physical activity.

3 s.h.

028:274 Philosophy of Sport
The meaning of sport as human experience; ethical, aesthetic dimensions.

3 s.h.

028:278 History of Women in Sports
Women's sport involvement from ancient times to present; focus on social class, attitudes, religion, race, ethnicity, medical opinion, economic considerations, political events, educational philosophies that have influenced women's sport participation. Same as 131:254.

3 s.h.

028:279 Sport and the African American Experience
Intersection of African American sport experiences and larger sporting culture; political, economic, social forces; effects of urbanization, rise of the modern city.

3 s.h.

028:290 Graduate Internship
Prerequisite: consent of instructor.

1-4 s.h.
028:291 Problems
Prerequisite: consent of instructor.

028:292 Practicum in College Teaching
arr.

028:294 Practicum: Athletics Administration
arr.

028:295 Graduate Research Workshop
Development of individual research projects for group discussion.

028:298 Graduate Topics
Sport studies or psychology of sport and physical activity topics.

028:299 Graduate Research Problems
Prerequisite: consent of instructor.

028:300 Research Colloquium
Research issues, current research projects of departmental faculty, graduate students. Repeatable.

028:370 Seminar in Sport Psychology
Current theory, research; applied sport psychology techniques. Repeatable. Prerequisite: 028:270.

028:372 Selected Issues in Sport Psychology

028:374 Seminar in Sport History
Topics in sport history; theoretical and methodological issues. Repeatable. Prerequisite: HSS graduate student or consent of instructor.

028:375 Cultural Analyses of Sport
Analytical strategies for studying sport; quantitative, qualitative techniques; materialist, feminist, cultural studies approaches. Repeatable. Prerequisite: consent of instructor.

028:378 Seminar in Cultural Studies of Sport
Current theoretical debates in sociology of sport; applications of cultural studies to critical analysis of sport. Repeatable. Prerequisite: consent of instructor.

028:386 Intercollegiate Athletics
Organization and administration of a Division I intercollegiate athletic program; current issues, problems.

028:398 Thesis: M.A.
Repeatable. Prerequisite: consent of instructor.

028:399 Thesis: Ph.D.
Repeatable. Prerequisite: consent of instructor.

Health and Physical Activity Skills
All Health and Physical Activity Skills courses (formerly known as Physical Education Skills) are approved as an option in the distributed general education portion of the General Education Program.

28S:006 Core Strengthening
GE: Health and Physical Activity.

28S:007 Aerobics: Low Impact
GE: Health and Physical Activity.

28S:009 Aquatic Exercise
GE: Health and Physical Activity.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>28S:011</td>
<td>Badminton I</td>
<td>1 s.h.</td>
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<tr>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:020</td>
<td>Fitness Walking</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:021</td>
<td>Flexibility</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:023</td>
<td>Golf</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:025</td>
<td>Hatha Yoga</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:029</td>
<td>Jogging I: Beginners</td>
<td>1 s.h.</td>
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<tr>
<td>28S:030</td>
<td>Jogging II</td>
<td>1 s.h.</td>
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<tr>
<td>28S:031</td>
<td>Karate I</td>
<td>1 s.h.</td>
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<tr>
<td>28S:033</td>
<td>Kick Boxing I</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:037</td>
<td>Lap Swimming I</td>
<td>1 s.h.</td>
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<td></td>
<td>Prerequisite: 28S:064 or consent of instructor. GE: Health and Physical Activity.</td>
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<tr>
<td>28S:038</td>
<td>Lap Swimming II</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Prerequisite: 28S:037 or consent of instructor. GE: Health and Physical Activity.</td>
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<tr>
<td>28S:042</td>
<td>Personal Fitness</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<td>28S:043</td>
<td>Pilates</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:045</td>
<td>Racquetball I</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:047</td>
<td>Relaxation Techniques</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:049</td>
<td>Sand Volleyball</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:052</td>
<td>Self Defense</td>
<td>1 s.h.</td>
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<tr>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:053</td>
<td>Slow-Pitch Softball I</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:055</td>
<td>Soccer I: Outdoor</td>
<td>1 s.h.</td>
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<td>GE: Health and Physical Activity.</td>
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<tr>
<td>28S:056</td>
<td>Soccer II: Outdoor</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Prerequisite: 28S:055 or consent of instructor. GE: Health and Physical Activity.</td>
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</tbody>
</table>
28S:057 Soccer: Indoor  
GE: Health and Physical Activity.

28S:058 Speed Walking  
GE: Health and Physical Activity.

28S:059 Spinning  
GE: Health and Physical Activity.

28S:061 Resistance Training  
GE: Health and Physical Activity.

28S:063 Swimming I  
GE: Health and Physical Activity.

28S:064 Swimming II  
Prerequisite: 28S:063 or consent of instructor. GE: Health and Physical Activity.

28S:066 Table Tennis  
GE: Health and Physical Activity.

28S:071 Tennis I  
GE: Health and Physical Activity.

28S:075 Ultimate Frisbee  
GE: Health and Physical Activity.

28S:077 Volleyball I  
GE: Health and Physical Activity.

28S:078 Volleyball II  
Prerequisite: 28S:077 or consent of instructor. GE: Health and Physical Activity.

28S:081 Weight Training I  
GE: Health and Physical Activity.

28S:082 Weight Training II  
Prerequisite: 28S:081 or consent of instructor. GE: Health and Physical Activity.
History

Chair: Colin Gordon
Professors: R. David Arkush, Constance A. Berman, Jeffrey L. Cox, James L. Giblin, Paul Greenough, Colin Gordon, Linda K. Kerber (May Brodbeck Professor in the Liberal Arts and Sciences), H. Shelton Stromquist, Katherine Tachau, Stephen Vlastos
Professors emeriti: T. Dwight Bozeman, Lawrence E. Gelfand, Ralph E. Giesey, Sarah Hanley, Ellis W. Hawley, Henry G. Horwitz, Jaroslav Pelenski, Malcolm J. Rohrbough, David Schoenbaum, Alan B. Spitzer
Associate professors: Douglas Baynton (History/Communication Sciences and Disorders), Michel Gobat, Laura Gotkowitz, Elizabeth Heineman, Paul Kramer, Paula Michaels, Kevin Mumford (History/African American Studies), H. Glenn Penny, Marshall Poe, Jacki Rand, Johanna Schoen (History/Women's Studies), Leslie A. Schwalm (History/Women's Studies), Allen Steinberg
Assistant professors: Meriam Belli, Michaela Hoenicke-Moore, Catherine Komisaruk, Michael E. Moore, Rosemary Moore (Classics/History), Jennifer E. Sessions, Elke Stockreiter, Omar Valero-Jimenez
Lecturer: Kathleen Kamerick

Undergraduate degree: B.A. in History
Undergraduate nondegree program: Minor in History
Graduate degrees: M.A., Ph.D. in History
Web site: http://www.uiowa.edu/~history

The Department of History's purpose is to increase knowledge of human experience and provide students with opportunities to gain information about and learn methods for understanding their world in light of its past. In addition to offering these essential elements of a liberal education, the department trains professional historians and teachers of history and serves those who require knowledge of a period or aspect of history as background for their own specialized interests in other fields.

Faculty and students in the department participate in many of the University's interdisciplinary departments and programs, including American studies, African American studies, ancient civilizations, Asian studies, international studies, Latin American studies, and women's studies.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in history. Graduates of the B.A. program work in a variety of positions in business, education, public service, advertising, and journalism. Many plan further training in history, law, religion, library and information science, or social work.

History majors are encouraged to take courses in other fields that illuminate and expand the meaning of history courses and that introduce information and a variety of approaches to understanding how societies and cultures work.

For example, students majoring in history are encouraged to complete the College of Liberal Arts and Sciences General Education Program foreign language component by choosing a language that fits their interests in history. The history faculty particularly encourages study abroad programs that complement students' foreign area interests. Majors also are encouraged to improve their writing and speaking skills.

Bachelor of Arts

The Bachelor of Arts in history requires a minimum of 120 s.h., including 36 s.h. of work for the major. The program is designed for students with a general interest in history. Course requirements include a colloquium, which usually is taken during the sophomore year or the semester after the student elects a major in history. The required portfolio, which should consist of at least three papers the student has written while enrolled in history classes, is submitted to the student's advisor during the semester before graduation.

College Level Equivalency Program (CLEP) and Advanced Placement Program credit cannot be used as part of the history major. Transfer work that is equivalent to University of Iowa course work can be accepted toward the major, but at least 18 s.h. of work for the major, including the colloquium, must be earned at The University of Iowa.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Undergraduate courses are divided into four areas: American history (prefix 16A), European history (16E), non-western world history (16W), and courses that have no area designation (016).

Students must complete 36 s.h. in history courses, as follows.

COLLOQUIUM

One of these:

- 16A:051 Colloquium for History Majors (American) 3 s.h.
- 16E:051 Colloquium for History Majors (European) 3 s.h.
- 16W:051 Colloquium for History Majors (World) 3 s.h.
History majors take the colloquium as soon as possible after declaring their major. Every colloquium includes assigned papers; students must include in their history portfolio at least one paper from their colloquium.

OTHER REQUIRED COURSES

At least 6 s.h. of American history, including at least one course numbered 16A:100 or above
At least 6 s.h. of European history, including at least one course numbered 16E:100 or above
At least 6 s.h. of non-western world history, including at least one course numbered 16W:100 or above
At least 3 s.h. of pre-1700 history (see "Pre-1700 Courses")

A course taken to fill the pre-1700 history requirement also may be counted toward the requirement in American, European, or non-western world history.

HISTORY ELECTIVES

In addition to the requirements listed above, the major requires 15 s.h. of elective courses in history (the total may include the colloquium). History electives may include no more than two of the following: 016:001 Western Civilization I, 016:002 Western Civilization II, 016:003 Western Civilization III, 016:005 Civilizations of Asia: China, 016:006 Civilizations of Asia: Japan, and 016:007 Civilizations of Asia: South Asia. Electives also may include all other courses offered by the department numbered above 016:040, 16A:040, 16E:040, and 16W:040. No more than 18 s.h. of American history (prefix 16A) may be counted toward the major.

PRE-1700 COURSES

The following courses fulfill the 3 s.h. requirement for pre-1700 history.

016:001 Western Civilization I 3-4 s.h.
016:002 Western Civilization II 3-4 s.h.
016:005 Civilizations of Asia: China 3 s.h.
016:006 Civilizations of Asia: Japan 3-4 s.h.
016:007 Civilizations of Asia: South Asia 3-4 s.h.
016:045 Middle East and Mediterranean, Alexander to Suleiman 3 s.h.
16A:115 Native North America I: Precontact-1789 3 s.h.
16A:131 The Frontier in American History to 1840 3 s.h.
16E:101 Ancient Egypt and the Ancient Near East 3 s.h.
16E:104 The World of Ancient Greece 3 s.h.
16E:106 Warfare in Ancient Mediterranean Society 3 s.h.
16E:107 The Hellenistic World and Rome 3 s.h.
16E:110 Medieval Civilization II 3 s.h.
16E:111 Medieval Intellectual History 300-1150 3 s.h.
16E:112 Medieval Intellectual History 1150-1500 3 s.h.
16E:113 Economic and Social History of Medieval Europe 3 s.h.
16E:116 Ireland in the Early Middle Ages 3 s.h.
16E:117 History of the Medieval Church 3 s.h.
16E:118 The Transition from Manuscript to Print 3 s.h.
16E:119 Women, Power, and Society in Medieval Europe 3 s.h.
16E:120 The Book in the Middle Ages 3 s.h.
16E:125 Society and Gender in Europe 1200-1789 3 s.h.
16E:126 The French Revolutions and Human Rights 3 s.h.
16E:139 Ancient and Medieval Science 3 s.h.
16W:111 Colonial Latin America 3 s.h.
16W:120 Pre-Colonial African History 3 s.h.
16W:172 Japan--Age of the Samurai 3 s.h.

B.A. with Teacher Licensure

Students who wish to qualify or licensure to teach social studies in secondary schools must complete the major in history and must earn at least 15 s.h. in U.S. history (16A), at least 15 s.h. in non-U.S. history (16E and 16W), and 15 s.h. in a related area chosen from economics, geography, anthropology, psychology, sociology, or American government and social institution.
government. Courses taken as part of the history major, including Colloquium for History Majors (numbered 16A:051, 16E:051, or 16W:051), may be counted as part of the 15 s.h. in U.S. history and the 15 s.h. in non-U.S. history required for certification.

Students also must complete College of Education professional education courses required for teaching licensure. Not all political science courses count toward certification to teach American government. Course content must center around the American political system or American political issues.

For information about the Teacher Education Program (TEP) or the secondary social studies education program, consult the social studies program coordinator at the College of Education.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: three courses in the major (including Colloquium for History Majors) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: three more courses in the major and submission of the portfolio of written work to the student's advisor

During the eighth semester: enrollment in all remaining course work in the major (two courses), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The requirement for entry into the history department's honors program is the same as that for entry into the University of Iowa Honors Program: a cumulative University of Iowa g.p.a. of at least 3.33. Through its honors program, the department provides outstanding students with opportunities to enhance their history major in several ways.

The most significant part of the honors program in history is the honors thesis. The thesis is an extended research paper (30-50 pages), usually completed during the spring semester of the junior year or fall semester of the senior year. Research for the thesis is done under the supervision of a faculty member who specializes in the field in which the student undertakes his or her research. Students register for 3 s.h. of 016:091 Honors Seminar and 016:092 Honors Thesis in each of two semesters. The 6 s.h. count toward the total number of hours needed for the history major.

Minor

The minor in history requires a minimum of 15 s.h. in history courses, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, all courses numbered above 016:080, 16A:080, 16E:080, and 16W:080 are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in history. The graduate programs prepare students for occupations such as high school or college teaching, publishing, commercial research, foundations and nongovernmental organizations, and government or other public service. With additional specialized training, students of history become qualified for careers in archival work, library work, museum work, or historical site preparation and display. Some students enter the joint program leading to degrees in both law and history (see "Joint Law and Graduate Degree Programs" in the College of Law section of the Catalog).

Students interested in graduate work should obtain a copy of the current Guide to Graduate Study at The University of Iowa from the Department of History office. The guide is revised every spring to include the latest faculty listing, research interests of faculty members, detailed regulations on study toward advanced degrees, and other information for prospective students.

Master of Arts

The Master of Arts in history requires a minimum of 30 s.h. of graduate credit and is offered with two options: one for
students who plan to work toward the Ph.D., the other for students who do not. The two plans differ mainly in their concentration in fields: the Ph.D. track emphasizes development of research capabilities culminating in the essay; the non-Ph.D. track stresses breadth of learning.

The M.A. with Ph.D. track requires completion of a research essay. Students must earn at least 24 s.h. of the required 30 s.h. in Department of History courses, including at least two seminars, or one seminar and one readings course. One seminar or readings course must be taken in each of the first two semesters of residence. Students must earn 12 s.h. in the area of their essay topic and at least 6 s.h. in a second division, including either a seminar or a readings course.

The essay in the major division must be based on original research and should be approximately 10,000 to 15,000 words long. It usually begins as a term paper for the seminar in the major division and is completed the following semester under the supervisor's guidance. The finished product should emulate the character of articles in learned journals, just as the Ph.D. dissertation takes the form of a full-length scholarly monograph.

Requirements for the M.A. with non-Ph.D. track are similar to those for the Ph.D. track program. Students earn 24 of the required 30 s.h. in history. They earn 12 s.h. in one major division of history and must include at least one readings or seminar course. They earn an additional 12 s.h. in history by taking 6 s.h. in each of two other divisions of history, or 6 s.h. in one other division of history and 6 s.h. in a related department. The additional 12 s.h. in history must include at least one readings or seminar course.

After completing these requirements, or during the semester in which they will complete them, M.A. students must take an oral and written comprehensive examination in their major division.

Doctor of Philosophy

The Ph.D. requires at least 72 s.h. of graduate credit, including credit for work done for the master's degree.

Students who earn the M.A. with research essay at Iowa are admitted to the Ph.D. program on the favorable recommendation of the examining committee. Students who earn an M.A. at another university must meet the admission requirements of the Graduate College and the Department of History. They must submit a writing sample, such as a seminar paper or an M.A. thesis. They also must take a research seminar during their first two semesters in residence at Iowa.

Ph.D. students must complete at least eight 200-level courses of 4 s.h. each, taken in research seminars (not fewer than three) or graduate readings courses. At least five of the eight courses must be completed before the student takes the comprehensive examination. Courses taken at the M.A. level may be counted toward this requirement. The student also must take a graduate course in the philosophy of history, historiography, or methods of historical research.

The department has no general language requirement for the Ph.D., but the supervising faculty member may require the student to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other study tools. Students may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination covers three distinct fields, two of which must be in a major division that is chosen from the following divisions.

- The ancient world
- Medieval Europe
- Europe, early modern
- Europe, modern
- Russia and the former Soviet Union
- United States
- Latin America
- China
- Japan
- India
- Africa

Students may construct another field, subject to approval by the comprehensive exam committee.

The third field must be a division outside the student's major division or in a related department outside history. The committee may define and delimit the individual fields for examination. It may also set, separately for each field, the character of the written portion of the comprehensive examination, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of forms that the committee deems suitable. The oral portion of the comprehensive examination focuses on issues and problems arising from the examination papers.

The candidate must submit to the dissertation committee a written prospectus for the dissertation no later than the semester following completion of the comprehensive exams. The committee consists of at least five members, including at least one member from outside the department. It considers the prospectus and may approve it, reject it,
or require its revision. When the dissertation is completed in final form, the committee administers the final examination for the doctorate, a formal oral defense of the dissertation that usually lasts two hours.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must submit academic transcripts and Graduate Record Examination (GRE) General Test scores. They also must submit examples of original writing to the history department, such as a term paper, a seminar paper, or an honors thesis; letters of recommendation from three persons familiar with the student's past academic work; and a one- or two-page personal statement of the applicant's purpose in taking graduate work. All application materials are due by January 15 for entry the following August.

**Facilities**

The University of Iowa Libraries has unusual strength in all aspects of U.S. history. The Main Library houses the Henry A. Wallace papers and related collections, the Iowa Women's Archives, and other unique materials. In European history, special strengths include the fine collections of French and English materials. The State Historical Society of Iowa in Iowa City and the Herbert Hoover Presidential Library and Museum in West Branch also hold valuable research materials.

**History Courses**

Courses numbered 016:001 Western Civilization I through 016:040 Perspectives: Diversity in American History are approved for General Education, except 016:008 Civilizations of Africa, which is not approved for General Education. Some other courses are approved in the foreign civilization and culture General Education area. They cannot be taken pass/nonpass, even when they are taken as electives. Majors should take 16A:051 Colloquium for History Majors (American), 16E:051 Colloquium for History Majors (European), or 16W:051 Colloquium for History Majors (World) in the sophomore year or in the first semester after declaring the major. Other courses numbered below 200 are open to first-year students who already have fulfilled the General Education Program historical perspectives requirement. Courses numbered 200 and above are offered as occasion demands.

**For Undergraduates**

016:001 **Western Civilization I**
Ancient and medieval. GE: Foreign Civilization & Culture, Historical Perspectives.

016:002 **Western Civilization II**
Early modern world. GE: Foreign Civilization & Culture, Historical Perspectives.

016:003 **Western Civilization III**
The modern world. GE: Foreign Civilization & Culture, Historical Perspectives.

016:005 **Civilizations of Asia: China**
GE: Foreign Civilization & Culture, Historical Perspectives. Same as 039:055.

016:006 **Civilizations of Asia: Japan**
GE: Foreign Civilization & Culture, Historical Perspectives. Same as 039:056.

016:007 **Civilizations of Asia: South Asia**
GE: Foreign Civilization & Culture, Historical Perspectives. Same as 039:057.

016:008 **Civilizations of Africa**
Introduction to the study of Africa; brief survey of African history; aspects of modern African life, including political and social issues, economic and health problems (including HIV-AIDS); classroom discussion of selected African films shown in class and selected African novels included in course reading.

016:011 **Issues in Human History: The Vietnam War in Historical Perspective**
GE: Historical Perspectives.
016:012 Issues in Human History: Communities and Society in History
GE: Historical Perspectives. 3 s.h.

016:014 Issues in Human History: Europe’s Expansion Overseas
GE: Historical Perspectives. 3 s.h.

016:015 Issues in Human History: Gender in Historical Perspective
GE: Historical Perspectives. 3 s.h.

016:017 Issues: Twentieth-Century Crisis
GE: Historical Perspectives. 3 s.h.

016:020 Issues in Medieval Society
GE: Historical Perspectives. 3 s.h.

016:022 Issues: Nature and Society in Historical Perspective
GE: Historical Perspectives. 3 s.h.

016:023 Issues in European Politics and Society
GE: Historical Perspectives. 3 s.h.

016:035 Medieval Religion and Culture
Religion in Europe from classical antiquity to dawn of the Reformation; the religious element in traditions such as art, architecture, literature. GE: Historical Perspectives. Same as 032:025. 3 s.h.

016:036 Modern Religion and Culture
European and American religious life from Renaissance to 21st century; focus on specific themes, such as secularism, regionalism, pluralism. GE: Historical Perspectives. Same as 032:026. 3 s.h.

016:040 Perspectives: Diversity in American History
People, cultures, behaviors, and values that have shaped American society and its past. GE: Cultural Diversity. 3 s.h.

016:045 Middle East and Mediterranean, Alexander to Suleiman
GE: Foreign Civilization & Culture. Same as 032:061, 20E:071. 3 s.h.

016:049 First-Year Seminar
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing. 1-2 s.h.

16A:051 Colloquium for History Majors (American)
Prerequisite: history major or consent of instructor. 3 s.h.

16E:051 Colloquium for History Majors (European)
Prerequisite: history major or consent of instructor. 3 s.h.

16W:051 Colloquium for History Majors (World)
Prerequisite: history major or consent of instructor. 3 s.h.

16E:058 Liturgy and Devotion in Christian Tradition
Liturgical traditions and devotional practices in western Christianity; Medieval Christian tradition, changes in liturgy and devotion that occurred with reformations of the 16th and 17th centuries; overview of modern developments. Same as 032:058. 3 s.h.

16W:061 Africa and the Atlantic Slave Trade
3 s.h.

016:082 The World Since 1945
GE: Foreign Civilization & Culture. 3 s.h.

16E:085 Early Modern Catholicism
3 s.h.
016:088 Introduction to New Media in the Humanities and Social Sciences 4 s.h.
Use of New Media software in research, presentation, and instruction; includes HTML editors (Dreamweaver), wikis (Confluence), blogs (WordPress), collaborative mark-up programs (CommentPress), graphics editors (Illustrator), map editors (MapPoint, ArcView), photographic editors (Photoshop), audio editors (Garage Band, Soundbooth, Audio Hijack Pro), video editors (iMovie, Premiere Pro, Photo-To-Movie), and animation editors (Flash); projects.

016:089 History Internship 3-6 s.h.
Internship involving historical work. Prerequisite: consent of director of undergraduate studies and Pomerantz Career Center.

016:090 Individual Study: Undergraduate arr.

016:091 Honors Seminar 0-3 s.h.

016:092 Honors Thesis 3 s.h.
Individual research and writing under supervision of faculty member; occasional group sessions with other students in the course.

For Undergraduate and Graduate Students

World and General History

016:100 Historical Background of Contemporary Issues arr.

16W:106 Society and Revolution in Cuba 3 s.h.
Cuban society and revolutionary movements since the late colonial period, including the years since 1959.

16W:107 History of Mexico 3 s.h.
Mexican history since the eve of the Spanish invasion, with focus on the national period; may include ethnic groups, conquest and demographic disaster, native survival, labor and migration, social protest and rebellions, nationhood, regional differences, religions, popular culture, economic growth and distribution, state building, international relations; survey.

16W:110 Topics in Latin American History 3 s.h.

16W:111 Colonial Latin America 3 s.h.
Cultural, institutional continuity from 16th century to independence.

16W:112 Introduction to Modern Latin America 3 s.h.
Cultural, institutional continuity from independence to present.

16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.

016:115 Policy Matters: Perspective on Contemporary Problems 3 s.h.
Public policy issues in scholarly perspective; UI experts provide background introduction to weekly issues; presentations of new policy initiatives, roundtable on policy options; panels representing local, state, and national options and experience involving policy practitioners, legislators, and advocates.

16W:115 Latin American Revolution 3 s.h.

16W:116 Dictatorships of Latin America 3 s.h.
Dictatorships, truth commissions, politics of memory in modern Latin America; the political and socio-economic origins of authoritarian regimes as well as their forms of rule, sources of support, uses of violence, and eventual downfall; the experience of specific sectors of society under authoritarian regimes, forms of resistance to authoritarianism, memories of terror, efforts to forge peace and justice in the aftermath of horror; includes personal testimony, film, human rights, reports, historical studies.
African and African American Interactions  3 s.h.
The slave trade, its legacy in Africa and the Americas; cultural, political interaction between Africans and African Americans; images of Africa in African American thought; Afrocentrism, its African critics. Same as 129:138.

Museum Literacy and Historical Memory  3 s.h.
Concepts and methods for understanding the role of museums in shaping knowledge and collective memory of history; institutionally based exhibits and collections, historical markers and public monuments, public holidays and events, media and artistic works that interpret the past; how events, people, and civic ambitions are memorialized and how memories of them are shaped; appearance of museums and related practices in the non-Western world after 1850. Prerequisite: honors standing or consent of instructor. Same as 024:115.

Pre-Colonial African History  3 s.h.
Africa to 1880; oral tradition, other sources; political development, ecological change, slavery and slave trade. GE: Foreign Civilization & Culture. Same as 129:163.

African History Since 1880  3 s.h.
Africa in colonial, post-colonial period; economics, political structures of colonialism; social change, political life in the 20th century. GE: Foreign Civilization & Culture. Same as 129:164.

History and Environment in Africa  3 s.h.

Crossing the Indian Ocean  3 s.h.
Transnational history of Western Indian Ocean; explore cultural and economic networks in the Indian Ocean World; how Islam and colonization are common experiences of peoples in this region; Indian Ocean World historical diversity; analytical concepts such as migration, Islam, globalization.

Women in African History  3 s.h.
Importance of female agency in African history; African women’s history in historiographical framework of women’s history, challenges historians face in exploring African women’s past; varied sources (e.g., novels, films, court records) from sub-Saharan Africa, urban and rural settings; current literature on African women, African women’s experiences in a comparative context.

Islam in Sub-Saharan Africa  3 s.h.
Islamization of sub-Saharan Africa; process, history of Muslim societies from beginnings of Islamization to present; source material on Islam in sub-Saharan Africa, historiographical approaches; jihad; Islamic law, learning, networks; Muslim women; historical role of African Muslims in global Muslim community.

History of Medicine in Western Society  3 s.h.
Theories about the body, illness, medical practice in social, economic, intellectual contexts; role of healers, professionalization of practitioners; evolution of public, private medical institutions; interrelationships of science, medicine, technology. Same as 152:136.

History of Public Health  3 s.h.
State-endorsed measures to avert or control disease in society. Same as 152:137.

History of International Health  3 s.h.
Foremost problems of health and disease in colonial and postcolonial societies; topical approach. Same as 152:138.

Disease, Politics, and Health in South Asia  3 s.h.
South Asia’s long-term success lengthening lives and stopping disease, weighed against its continuing burden of infection, violence, pollution, and class-based suffering.

Palestine, Israel, and the World Since 1890  3 s.h.

War and Peace in the Twentieth Century  3 s.h.

History of the Modern Middle East  3 s.h.
16W:153 Topics in the Modern Middle East
3 s.h.

16W:155 Europe and the U.S. in the Twentieth Century
3 s.h.
The U.S.-European transatlantic relationship over the 20th century in historical perspective; sense of common heritage transformed into program of political purpose; alliances in defense of a shared civilization—the West—challenged by nations and ideologies, from the Wilhelmine Empire to Nazi Germany, from U.S.S.R. to Islamist groups; reluctant American involvement in Europe, East European claims of inclusion, mutual frustrations and suspicions, differences in interpreting the shared tradition; diverging concepts of security, legitimacy, sovereignty, and history lessons underscored by U.S. role as sole superpower and European Union experiment in integration.

16W:157 Gender, Sexuality, and Human Rights
3 s.h.
History of gender and sexuality as components in international human rights activism and law; current debates, representative topics. Same as 131:157, 154:157.

16W:167 Patterns in World History
3 s.h.
Patterns in world history from the evolution of humankind to the present; basic texts in evolution, migration, social evolution.

16W:168 Cooperation in World History
3 s.h.
Origins and role of human cooperation in world history, from human evolution to present; basic evolutionary theory, origins of humans, character of human nature, emergence of human cooperation, human cooperation in comparative zoological perspective; evolution of cooperative institutions such as family, tribe, market, state, mass religion, science, Internet.

16W:172 Japan—Age of the Samurai
3 s.h.
Society, culture, and politics of feudal Japan; social class, gender, norms, and political and economic developments explored through cinema and literature. Same as 39J:172.

16W:173 Modern Japan
3 s.h.
Political, social, and cultural developments of Japanese feudalism; feature films, fiction. Same as 39J:173.

16W:174 History, Memory & Pacific War
3 s.h.
Contemporary meanings of the Pacific War in the collective memory of Americans and Japanese; readings and travel to war/peace memorials in Hawaii and Japan.

16W:175 Japan—U.S. Relations
3 s.h.
Political, social, economic, and cultural developments in Japan mid-19th to late-20th century. Same as 39J:175.

16W:178 Topics in Asian History
3 s.h.
Same as 039:175.

016:180 Readings: International Security
3-4 s.h.

016:183 Vietnam War on Film
3-4 s.h.

016:185 History and the New Media
3 s.h.
How to do history on the Internet; project/methods approach.

016:186 Modern Warfare, 1500-Present
3 s.h.
World military history from 15th century to present; development of weapons, tactics, strategies.

016:190 Teaching History: Approaches in Lesson Design
3 s.h.

016:192 Traditions of Religious Reform
3 s.h.
Same as 032:192.

16W:198 China Since 1927
3 s.h.
Communist revolution from 1920s to founding of People's Republic of China in 1949; Mao Zedong's radical policies, Cultural Revolution; Deng Xiaoping's economic reforms; China today. GE: Foreign Civilization & Culture. Same as 039:196.

**American History**

**16A:061 American History 1492-1877**
3 s.h.
Discovery through Civil War, Reconstruction; emphasis on social history of colonial era and social, economic, political developments of Revolutionary, antebellum periods.

**16A:062 American History 1877-Present**
3 s.h.
Emphasis on social, political developments of Gilded Age, Progressive Era, Great Depression; the United States as a world power.

**16A:065 Introduction to African American History**
3 s.h.
GE: Cultural Diversity. Same as 129:065.

**16A:066 Civil War and Reconstruction**
3 s.h.

**16A:067 Survey of U.S. Women's History**
3 s.h.
Private lives and public roles of American women of different class, race, ethnic, religious backgrounds, colonial period to present; women's roles in American life, how women have shaped society, culture, politics; family life, work roles, political participation. Same as 131:067.

**16A:069 Introduction to Mexican American History**
3 s.h.
Introduction to major themes in Mexican American history from the 18th century to the present; settlement of Mexico's Far North by Spanish Mexican residents, their incorporation into the United States after a war of conquest, and the growth of Mexican Americans into the nation's largest Latino group.

**16A:104 History of the American Deaf Community**
3-4 s.h.
Creation of a distinct language and culture of deaf people in America during the 19th and 20th centuries. Taught in American Sign Language. Prerequisite: 158:014 or consent of instructor. Same as 158:100.

**16A:106 Disability in American History**
3 s.h.

**16A:107 American Cultural History 1820-1920**
3 s.h.
Culture as contested terrain; creation of cultural hierarchy (high and popular culture); struggles over the cultural construction of meaning; competing stories of America; advent and significance of mass culture.

**16A:110 Introduction to American Indian History and Policy**
3 s.h.
Same as 149:102.

**16A:112 Mexican American History**
3 s.h.
Survey of Chican/o (Mexican American) history from 18th century to present; Mexican American society's diverse nature, explored through class, ethnic, gender, and regional divisions. Approved for GE: Cultural Diversity.

**16A:113 Latina/o Immigration**
3 s.h.
Immigration experiences of people arriving in the United States from other regions of the Americas (e.g., Mexico, Central America, the Caribbean, South America); what has fueled immigration--social, political, and economic developments in the United States and other nations; territorial conquest, colonialism, real and imagined borders, chain migration, formation of immigrant communities, acculturation, circular migration, social networks; how migration restructures gender relations; immigrant communities and pan-Latino identity in the United States.

**16A:115 Native North America I: Precontact-1789**
3 s.h.
Same as 149:115.

**16A:116 Native North America II: 1789-Present**
3 s.h.
Same as 149:116.
16A:117 U.S. Indian Policy in the American Indian Family 3 s.h.

16A:122 Varieties of American Religion 3 s.h.
World views of religious groups (e.g., Mormon, Scientology, Jehovah's Witness, Black Muslim, Unification Church of Sun Myung Moon). Same as 032:141.

16A:131 The Frontier in American History to 1840 3 s.h.

16A:132 The Frontier in American History 1840-Present 3 s.h.

16A:133 American West in Film 4 s.h.

16A:135 American West in the Twentieth Century 3-4 s.h.
Focus on growth, redistribution of political power, exploitation of and competition for natural resources, intermingling of diverse cultural groups.

16A:137 History of Iowa 3 s.h.

16A:139 The Social History of American Baseball 3 s.h.
History of baseball in the United States from its beginnings as a working-class recreation through the present; history of the game and the people who have played it, how the history of American society is viewed through the lens of baseball, how the game has contributed to social change; social class, race, urbanization, crime and political corruption, public health, big business and professionalism, spectatorship, entertainment and mass culture, national mythology, the exercise of legitimate authority (umpires!).

16A:141 Work and Society in Industrializing America 3 s.h.
Industrialization, formation of an American working class; changing patterns of labor organization, strike activity, politics; impact of ethnic, racial, gender divisions on working class communities, culture.

16A:142 American Labor in the Twentieth Century 3-4 s.h.
Competing philosophies and organizational strategies of workers in a maturing industrial economy; impact of world wars and Great Depression on American workers and their unions; rise of service sector, deindustrialization.

16A:144 American Economic History 3 s.h.
Emphasis on role of population and technology. Prerequisites: 06E:001 and 06E:002 or consent of instructor for economics majors; 06E:001 and 16A:061 for nonmajors. Same as 06E:158.

16A:146 Immigrant America 1845-1925 3 s.h.
Era of mass immigration in world context; formation, organization of immigrant communities; diverse processes of adaptation, assimilation; rural, urban contrasts; coercive Americanization, immigration restriction.

16A:147 History of Slavery in the U.S.A. 3-4 s.h.
Origins, development; focus on labor, family, gender, community, culture, resistance; South's defense of slavery; wartime collapse, destruction of slavery. Same as 129:137.

16A:148 Race, Gender, U.S. International History 3 s.h.
Interplay between the United States' 20th-century rise to world power and its racial and gender politics, in context of the dynamic interaction of U.S. domestic society and international relations; U.S. colonialism in the Caribbean and Pacific, struggles over migration, world wars as crucibles of social and political change, cultural politics of the Cold War, racial and gendered dimensions of the war on terror.

16A:149 Transnational America 1880-1939 arr.
The United States as a society increasingly embedded in global history during the late 19th- and early 20th-centuries; approaches for thinking about history in transnational ways; intensification of European, Asian, and Latin American immigration; cross-national dimensions of American reform; emergence of diasporic social movements; international scale of the corporate state; politics of colonialism and world war.

16A:150 The United States as Empire 3 s.h.
The U.S. rise to world power; continental empire-building in the 19th century; industrial, military and colonial power in the early 20th century; global hegemony from the mid-20th century to the present; white settler colonialism; overseas rule of Philippines and Puerto Rico; cultural Americanization; Cold War interventionism; post-9/11 unilateralism; meanings of American exceptionalism, intersections of U.S. nationalism with race and gender, remaking of domestic U.S. society within a changing global and imperial context.

16A:151 United States in World Affairs to 1900 3 s.h.
Origins of modern diplomatic practices; security, territorial and commercial expansion; legal, constitutional problems.

16A:152 United States in World Affairs 3 s.h.
America's emergence as leader in world affairs; imperialism, international collaboration, participation in world wars, the Cold War.

16A:153 U.S.A. in a World at War 1931-1945 3 s.h.
Significance of World War II to the United States.

16A:154 Sexuality in the United States 3 s.h.
Same as 131:158.

16A:155 Political Culture of U.S. Foreign Policy 3 s.h.
Political culture of U.S. foreign policy in historical perspective; connections and interactions between the domestic scene and international realities, from time of manifest destiny to national security state; domestic foundations of American power and its projection abroad, including constitutional framework, economic developments, rise of the state, role of media, public opinion, civilian-military relations; concepts of race, ethnic identifications, and religious and political beliefs have shaped understandings of patriotism, national interest, international responsibility; great debates in which American national identity and purpose are renegotiated.

16A:156 Major Topics in U.S. Foreign Policy 3 s.h.
Continuation of 16A:152; select themes in the history of U.S. foreign policy studied in greater detail; examination of major conflicts (i.e., World War Two, the Cold War or the Vietnam War, and recent engagements in the Middle East), drawing from a wide range of primary sources, film material, and secondary material.

16A:158 History of American Society 1820-1920 3-4 s.h.
Social foundation of the Civil War, Reconstruction; emergence of industrial and urban society, immigration, agrarian and working class protest, segregation, social reform, progressivism, nationalism, roots of imperialism.

16A:159 Warfare in American History: 1492-1924 3 s.h.
Impact of wars fought in North America on the development of American politics, society, and culture, from the arrival of Columbus to early 20th century.

16A:160 North America in the Atlantic World 3 s.h.

16A:161 Colonial North America, ca. 1600-1775 3 s.h.
Introduction to major themes in colonial American history prior to the American Revolution.

16A:162 American Revolutionary Period 1740-1789 3 s.h.
Political, military history of colonies 1754-1776; imperial upheaval; building a new nation; creation of federal system.

16A:163 Native Americans in the Age of Empires, ca. 1500-1815 3 s.h.
Overview of major issues in Native American history during the period of European Imperialism in North America. Recommended: junior or senior standing.

16A:165 The Gilded Age in America 3 s.h.
Emergence of industrial, urban America, from Civil War through 1890s; emphasis on social, political developments.

16A:166 The Progressive Era in America 3 s.h.
Protest and reform, imperialism, World War I, from 1890s to 1920.

16A:167 The New Era and the New Deal 1920-1940 3 s.h.
United States between the wars; emphasis on New Era system, impact of the Great Depression and response by the Hoover administration, the New Deal.

16A:168 The Contemporary U.S. 1940-Present 3 s.h.
United States as a global power; emphasis on World War II and Cold War, recent patterns of social and economic change, politics of 1950s, 1960s.

16A:171 U.S. Women's History to 1870 3 s.h.
American history through women's eyes; interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered; legal history, women's education. Same as 131:171.

16A:175 Family, Gender, and Constitutional History 3 s.h.
Same as 091:252.

16A:176 U.S. Legal History 3 s.h.
History of the law in the United States, as it developed from era of the Revolution to present; interaction of courts and legislatures with social movements; readings on court decisions, social histories, fiction (film and prose).

16A:184 Black Global Metropolis: Sexual History 3 s.h.
Dispersion of people of African descent into the global metropolis, from expansion of port cities in the slave trade to industrialization of European and American cities, decolonization of the Third World, and proliferation of spatial cultures in contemporary geography; readings cover prostitution in colonial New York, sexual danger in Victorian London, jazz age Chicago, sexual psyches in Algiers, black gay expatriates in Paris, social science in Harlem and Puerto Rico ghettos, black/white sex in Johannesburg, transsexuals in Rio de Janeiro, Black Panther sexual politics in urban America, global hip-hop sexualities. Same as 129:184, 154:184.

16A:185 Themes in African American History 3 s.h.
Same as 129:189.

16A:188 African American History 1865-Present 3 s.h.
African American history since Reconstruction; survey of African American politics and society from Reconstruction to present. Same as 129:187.

European History

16E:065 Europe Since 1945 3 s.h.
Europe since World War II: recovery, cold war, social and economic change, global perspectives.

16E:101 Ancient Egypt and the Ancient Near East 3 s.h.
Same as 20E:101.

16E:102 Food in Ancient Mediterranean Society 3 s.h.
Practices and values influenced by consumption and production of food in ancient Mediterranean societies; varied topics, including methods of food production and distribution, hierarchies of status as associated with food, food and ethnic identity, food and health, food and religion; focus on classical Greek and Roman society, also Egypt, the ancient Near East, and Persia; group presentations, several short papers, research project. Recommended: familiarity with Greek and Roman civilization and history. Same as 20E:136.

16E:104 The World of Ancient Greece 3 s.h.

16E:106 Warfare in Ancient Mediterranean Society 3 s.h.
Same as 20E:106.

16E:107 The Hellenistic World and Rome 3 s.h.
Social, economic, political, intellectual history of Graeco-Roman world, from fourth century B.C.E. to Justinian's reign. GE: Foreign Civilization & Culture.

16E:108 The Twelfth Century Renaissance 3 s.h.
Social, economic, intellectual, and cultural rebirth of Europe in the 12th century; Latin learning and education; developments in vernacular literature, art, architecture, new religious orders and institutions, pilgrimage and Crusade.

16E:109 Medieval Civilization I
Europe from the decline of Roman empire to the eleventh century; cultural, political, economic, artistic and architectural foundations of Western civilization. Same as 162:109.

16E:110 Medieval Civilization II
Europe from the eleventh century to the Italian Renaissance; cultural, political, economic, artistic, and architectural foundations of Western civilization. GE: Foreign Civilization & Culture. Same as 162:110.

16E:111 Medieval Intellectual History 300-1150
Philosophy, art, literature, religious culture of Europe from waning of classical intellectual modes of culture in late antiquity, to their recovery in 12th century.

16E:112 Medieval Intellectual History 1150-1500
European philosophy, religion, literature, art from 12th-century rise of scholasticism; their transformation in period of Copernicus, Luther.

16E:113 Economic and Social History of Medieval Europe
Changes in western Europe from 300 to 1500 A.D.; feudalism, manorialism, revival of towns, heresy, women, monasticism, agricultural and commercial revolutions, Black Death. GE: Foreign Civilization & Culture.

16E:114 Medieval Philosophy
Main trends and major figures, such as Augustine and Aquinas. Same as 026:112.

16E:116 Ireland in the Early Middle Ages
Ireland and the northern British islands 400-1000 CE, a region of small kingdoms and thin population, lacking natural resources, far from Rome and ancient centers of Mediterranean culture; development of civilization, including monastic, legal, theological, and scholarly traditions that had a major impact on continental Europe; early medieval Irish history; introduction to the world of historical scholarship.

16E:117 History of the Medieval Church
Development of Christianity to end of great schism; rise of Roman primacy, development of monasticism, orthodox and heterodox groups. GE: Foreign Civilization & Culture.

16E:118 The Transition from Manuscript to Print
Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as 021:258, 108:183.

16E:119 Women, Power, and Society in Medieval Europe

16E:120 The Book in the Middle Ages
Relation of text, decoration, function, creators, and audience in different genres of medieval manuscript books 400-1500 A.D. Prerequisite: 01H:005 or 16E:110 or consent of instructor. Same as 108:182.

16E:123 Religious Conflict/Early-Modern Period
Reformation of 16th century--Lutheran, Calvinist, Radical, English; readings from major representatives of each. Same as 032:154.

16E:125 Society and Gender in Europe 1200-1789
Social and gender ideologies as inscribed in patterns of authority (household, church, state); ranges of human endeavor (intellectual, psychological, biological); community organization (social, economic, legal, sexual); their influence on concept of community. GE: Foreign Civilization & Culture. Same as 131:181.

16E:126 The French Revolutions and Human Rights
Worldwide issues of human rights posed by the French Revolution, Caribbean Slave revolution, Napoleonic regime; state governance, class status, religious freedoms, marital inequities, plantation economy, slave trade, citizenship. GE: Foreign Civilization & Culture.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16E:127</td>
<td>European History in Text and Film</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>How community and identity are formed, what laws or customs prevail, who is</td>
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<td></td>
<td>included and excluded, choices between civic freedoms and obligations,</td>
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<td></td>
<td>consequences when civil rights are transgressed; case studies mid-16th</td>
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<tr>
<td></td>
<td>through mid-20th centuries. GE: Foreign Civilization &amp; Culture.</td>
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<tr>
<td>16E:130</td>
<td>Modern European Imperialism</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to the history of European imperialism since the 18th century;</td>
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<tr>
<td></td>
<td>major shifts in the nature of European empire examined through the Haitian</td>
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<tr>
<td></td>
<td>Revolution, India, Australia, Congo, Algeria.</td>
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<tr>
<td>16E:134</td>
<td>Nineteenth-Century Europe</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Political, social, economic, and cultural factors.</td>
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<tr>
<td>16E:135</td>
<td>Twentieth-Century Europe: The Nazi Era</td>
<td>3 s.h.</td>
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<tr>
<td>16E:136</td>
<td>Twentieth-Century Europe: The Cold War and After</td>
<td>3 s.h.</td>
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<tr>
<td>16E:139</td>
<td>Ancient and Medieval Science</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Greeks' initiation of scientific inquiry; developments in astronomy,</td>
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<td></td>
<td>cosmology, optics, mathematics, physics, medicine, psychology in ancient and</td>
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<td></td>
<td>medieval societies of Middle East, Europe.</td>
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<tr>
<td>16E:143</td>
<td>Modern France 1789-1871</td>
<td>3 s.h.</td>
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<tr>
<td>16E:144</td>
<td>Modern France 1870-Present</td>
<td>3 s.h.</td>
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<tr>
<td>16E:146</td>
<td>France from 1815-Present</td>
<td>3 s.h.</td>
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<tr>
<td>16E:150</td>
<td>Modern Britain: The Eighteenth Century</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Great Britain from Glorious Revolution of 1688 to end of the Napoleonic Wars</td>
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<tr>
<td></td>
<td>in 1815; post-revolution political settlement, political conflict, growth</td>
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<td></td>
<td>of British empire, religious dissent, evangelical revival, Industrial</td>
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<td></td>
<td>Revolution, American Revolution, British response to the French Revolution.</td>
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<tr>
<td>16E:151</td>
<td>Modern Britain: The Nineteenth Century</td>
<td>3-4 s.h.</td>
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<tr>
<td></td>
<td>Great Britain 1780-1914; evangelical revival, Industrial Revolution, growth</td>
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<td></td>
<td>of modern political parties, progress of political reform, scientific</td>
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<tr>
<td></td>
<td>developments, influence of Darwin and Mill, growth of secularism, British</td>
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<td></td>
<td>Empire, Boer War, advent of World War I.</td>
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<tr>
<td>16E:152</td>
<td>Modern Britain: The Twentieth Century</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Great Britain from Boer War to Tony Blair's political triumph; liberal</td>
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<td></td>
<td>revival, World War I, rise of the Labour Party, the Depression, appeasement,</td>
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<td></td>
<td>World War II, Labour's triumph after the war, rise of consensus politics,</td>
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<td></td>
<td>1960s cultural changes, Margaret Thatcher's political ascendancy,</td>
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<td></td>
<td>transformation of the Labour Party under Blair.</td>
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<tr>
<td>16E:153</td>
<td>Notions of Progress in Modern European History</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>The idea of progress used to understand the relationships between society,</td>
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<td></td>
<td>government, economics, and power; what constitutes progress; how notions of</td>
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<td></td>
<td>progress have shaped modern Europe and the United States; how the idea of</td>
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<td></td>
<td>progress has helped to legitimate political, social, and cultural projects;</td>
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<td>how it continues to inform local, national, and international politics and</td>
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<td></td>
<td>individuals' personal lives.</td>
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<tr>
<td>16E:155</td>
<td>German History 1648-1914</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>History of German speaking lands 1648-1918.</td>
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<tr>
<td>16E:156</td>
<td>Germany Since 1914: Weimar, Hitler, and After</td>
<td>3-4 s.h.</td>
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<tr>
<td></td>
<td>Continuity, change in 20th-century German politics, society, culture;</td>
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<td>creation, collapse of Weimar Republic; Nazism and Third Reich; East and West</td>
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<td>Germany since 1945; unification and its discontents. GE: Foreign Civilization</td>
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<td></td>
<td>&amp; Culture. Same as 13E:126.</td>
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</tr>
<tr>
<td>16E:171</td>
<td>History of the Russian Empire, 900-1917</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Introduction to history of polities and peoples of western Eurasia from 10th century to Russian Revolution; formation and vicissitudes of the Russian Empire; ethnogenesis in western Eurasia; origins of the Rus', Kievan Rus' and its competitors, the Mongol invasion of Rus', rise of Muscovy, Muscovite political system, birth of the Russian empire, Russian empire during republicanism and nationalism.

**16E:178 Soviet Union 1917-1945**  
3-4 s.h.  
Revolution, foundation of Soviet Union; Leninism; major political, social, ideological developments during Stalinist period--collectivization, industrialization, terror; nationalities, foreign policy; World War II; Cold War; socialist state system. GE: Foreign Civilization & Culture.

**16E:179 Soviet Union 1945-1991**  
3 s.h.  

**16E:185 First World War**  
3-4 s.h.  
Social, economic, political, technological, military aspects of causes, conduct, consequences of war of 1914-18; fiction, contemporary documents, historical works, films.

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**For Graduate Students**

**016:201 First-Year Graduate Colloquium**  
3 s.h.  
Introduction to history graduate program.

**016:202 Introduction to New Media in the Humanities and Social Sciences**  
arr.  
Use of New Media software in research, presentation, and instruction; includes HTML editors (Dreamweaver), wikis (Confluence), blogs (Wordpress), collaborative mark-up programs (CommentPress), graphics editors (Illustrator), map editors (MapPoint, ArcView), photographic editors (Photoshop), audio editors (Garage Band, Soundbooth, Audio Hijack Pro), video editors (iMovie, Premiere Pro, Photo-To-Movie), and animation editors (Flash); projects.

**016:204 Readings: Slavery and Emancipation**  
arr.  

**016:205 Gender and Race in Nineteenth-Century U.S.**  
arr.  
Same as 129:205, 131:206.

**016:207 The American Civil War in History and Memory**  
arr.

**016:209 Seminar: Medieval Social and Economic History**  
arr.

**016:210 Readings: Medieval Women**  
arr.

**016:211 Seminar: Medieval Intellectual History**  
arr.

**016:212 Readings: Medieval Intellectual History**  
arr.

**016:213 Seminar: History of Science**  
arr.

**016:214 Readings: Medieval and Early Modern Universities**  
arr.

**016:215 Graduate Readings: Monastic History**  
arr.  
History of Christian monasticism in the medieval west; the developing monastic and religious orders, nuns of those groups; tertiaries, beguines, other orthodox penitent movements from the development of Christianity to the Reformation.

**016:217 Source Criticism for Medieval Studies**  
arr.

**016:218 Medieval Latin Paleography**  
arr.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Arrangement</th>
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</thead>
<tbody>
<tr>
<td>016:220</td>
<td>Research Seminar</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Research for students in all areas of history.</td>
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<tr>
<td>016:223</td>
<td>Seminar: Reformation Culture and Theology</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Culture and theology of 16th-century Europe. Same as 032:223.</td>
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<tr>
<td></td>
<td>History of sexuality within the family, its move into the marketplace; social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as 131:225.</td>
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<tr>
<td>016:228</td>
<td>Readings: History of Feminisms</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Same as 131:228.</td>
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<tr>
<td>016:229</td>
<td>Readings in the Arab Israeli Conflict</td>
<td>arr.</td>
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<tr>
<td>016:230</td>
<td>Readings in Modern Middle East History</td>
<td>arr.</td>
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<td></td>
<td>Themes in African precolonial and modern history.</td>
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<tr>
<td>016:233</td>
<td>Readings: Women, Men, and Gender in Modern Europe</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Same as 131:233.</td>
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<tr>
<td>016:234</td>
<td>Readings: Colonialism and Empire in European History</td>
<td>arr.</td>
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<tr>
<td>016:235</td>
<td>Seminar: Modern Europe</td>
<td>arr.</td>
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<tr>
<td>016:236</td>
<td>Readings: Modern European History</td>
<td>arr.</td>
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<tr>
<td>016:237</td>
<td>European Encounters with North America</td>
<td>arr.</td>
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<td></td>
<td>History of European-American relations over the past three hundred years; reading of primary texts such as de Tocqueville's <em>Democracy in America</em> and secondary works on Europeans' interests in North America and their confrontations with the United States.</td>
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<tr>
<td>016:238</td>
<td>Readings in the History of Modern France</td>
<td>arr.</td>
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<tr>
<td>016:239</td>
<td>Readings: War and Society in Modern Europe</td>
<td>arr.</td>
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<td></td>
<td>Preparation, conduct, and aftermath of war; social-historical examination; conflicts on European territory, colonial wars, and wars of decolonization, from French Revolution through late 20th century.</td>
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<td>Same as 149:243.</td>
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<tr>
<td>016:244</td>
<td>Crossing Borders Proseminar</td>
<td>1 s.h.</td>
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<tr>
<td>016:246</td>
<td>United States in the World</td>
<td>arr.</td>
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<td></td>
<td>Historiographies that situate modern U.S. history in a global context; how historians study the American past beyond traditional, nation-centered frames; transnational histories of migration, nativism and exclusion; social movements; colonial empire-building; commercial and cultural Americanization; transfer of policy ideas; military occupations; decolonization; Cold War's impact on social reform; post-9/11 moment.</td>
<td></td>
</tr>
</tbody>
</table>
016:247 Crossing Borders Seminar

016:248 Seminar: Research in Race and Ethnicity
arr.

016:249 Teaching Seminar: Graduate Instructors
Issues and methods for effective history teaching at the college level.

016:250 Readings: History of Medicine and Health
arr.

016:251 Seminar: History of Medicine and Health
2-4 s.h.

016:254 Teaching Proseminar
Preparation for leading undergraduate discussion sections for 016:001 - 016:003 Western Civilization I-III; specific subject matter preparation similar to that offered in graduate readings courses; for first-time graduate teaching assistants.

016:256 Theories of World History
Macrohistorical theories of world history; can a prominent theory or combination of theories explain the social evolution of humankind over hundreds of thousands of years; how to periodize world history; does history have a direction, and if so, what direction; the future of humankind.

016:259 Seminar: Interpreting Oral Histories
Interpretations and methods applied by historians in various world regions to different forms of oral history, from old oral traditions to contemporary autobiographical testimony. Same as 129:259.

016:260 Readings: Comparative Labor History
arr.

016:261 Seminar: American Colonial History
arr.

016:262 Readings: American Colonial History
arr.

016:263 The Art and Craft of Historical Writing
Focus on improving students' skills in historical writing; readings from exemplary texts, ancient to contemporary; all aspects of historical writing, from sentence composition and paragraph structure to evidence and narrative voice.

016:264 Seminar: Social History of the American Working Class
arr.

016:265 Seminar: American Social History
arr.

016:266 Readings: The Gilded Age and the Progressive Era
arr.

016:267 Seminar: Contemporary United States
arr.

016:268 Readings: Modern United States
arr.

016:269 Readings in Transnational U.S. History
Emerging historiographies that problematize national frameworks of history writing and reexamine U.S. history from transnational and global perspectives; methodological works on transnational, imperial, and global history; literatures on transnational migration, global production and trade, social movements, intercultural borrowing and exchange, and empire-building.

016:270 Readings in the History of Women and Gender in the U.S.A.
Same as 131:270.

016:271 Seminar: American Frontier
arr.

016:272 Readings: The American Frontier
arr.
016:273 Readings in American Social History

016:275 Seminar: American Religious Thought
Same as 032:213.

016:276 Seminar: Puritanism
Same as 032:214.

016:277 Feminist Research Seminar
Feminist research methodologies; how to conduct original research, write a research proposal and research paper, read and criticize others' work. Repeatable. Same as 131:204.

016:278 Research in Transnational U.S. History
Experience framing, organizing, and carrying out an original investigation on a theme in U.S. transnational history, followed by review and discussion of drafts; opportunity to explore transnational methodologies while developing professional skills of literature review, source interpretation, and collegial critique.

016:279 Seminar: Gender and Sexuality in U.S. Law
Same as 091:627.

016:280 Readings in Latina/o History
Introduction to major works and recent scholarship in Latina/Latino history.

016:281 Readings in Borderlands History
Comparative borderlands; articles on diverse topics from borderland regions worldwide (main focus on U.S.-Mexico borderlands, with inclusion of European, Asian, African, and Latin American borderlands); analysis of each article for its thesis, research questions, methodology, primary sources, and weaknesses; seminar.

016:284 Seminar: History of Women and Gender
Opportunity to pursue research for a single paper, M.A. thesis, or doctoral dissertation in the history of women and gender in the United States; interdisciplinary and internationally comparative projects; meetings and evaluations with attention to the craft of writing.

016:285 Readings: Gender in Latin American History
Same as 131:285.

016:286 Law and the Civil Rights Movement in Alabama 1955-65
Alabama and civil rights, from the Montgomery Bus boycott to the Selma March, major civil rights organizations and their most visible leaders, fair hearings for constitutional challenges in the Alabama federal court, courageous local lawyers, and resistance to the dismantling of segregation embodied by George C. Wallace; significance of law and legal institutions in advancing or retarding a political movement of extraordinary significance, complexity, and volatility; impact of legal developments arising from the Civil Rights Movement on other protest/reform movements in subsequent periods; perspectives from recent literature commemorating Brown v. Board of Education. Same as 091:652.

016:287 Readings: African American Women's History
Same as 129:287, 131:287.

016:288 Readings: Latin American History
Same as 035:247.

016:289 Archives Master Course
1 s.h.

016:290 Seminar: Post-Comprehensive
Historical fields, methodologies; emphasis on presentation, criticism of research materials. Prerequisite: Ph.D. comprehensive exams passed.

016:292 Readings in Chinese History
Same as 039:258.

**016:294 Readings: Japanese History**
Same as 39J:257.

**016:295 Readings in Modern India**

**016:296 Individual Study: Graduate**

**016:297 Thesis**

**016:298 Predissertation Seminar**
Preparing for dissertation work for students in all areas of history; thesis topic, relevant literature in the topic field, potential sources, primary research strategy, sources of research funding, research proposal; preparation for submitting applications for dissertation research fellowships and beginning of completing the thesis prospectus.

**016:299 History Workshop: Theory and Interpretation**
The Department of Integrative Physiology offers undergraduate and graduate programs in integrative physiology. Graduate students may choose from five different areas of specialization for the M.S. with thesis, and from four different areas for the Ph.D. The department also offers an undergraduate major in athletic training, in conjunction with the Department of Orthopaedics and Rehabilitation in the Carver College of Medicine.

Undergraduate Programs

The Department of Integrative Physiology offers a Bachelor of Science in integrative physiology and in athletic training. It also offers a minor in integrative physiology.

Bachelor of Science in Integrative Physiology

The Bachelor of Science in integrative physiology requires a minimum of 120 s.h., including 63 s.h. of work for the major and the prerequisite courses for admission to the major. The program is designed primarily for individuals who intend to continue their education beyond the B.S. in the health professions, including medicine, dentistry, optometry, physician assistant, physical therapy, and podiatry, or for those who intend to pursue graduate degrees in basic life sciences.

The integrative physiology major includes study in anatomy, biomechanics, integrative physiology, neural control of movement, and the cognate areas of biology, chemistry, mathematics, physics, and statistics. Students also must complete the College of Liberal Arts and Sciences General Education Program.

Admission to the major in integrative physiology is selective; students must apply and be admitted to the major.

Prerequisites for Admission to the Major

Students must complete the following course work before they may be admitted to the major in integrative physiology. Completion of these requirements does not guarantee admission to the major.

- 002:010 Principles of Biology I (counts toward the major) 4 s.h.
- 004:011 Principles of Chemistry I (counts toward the major) 4 s.h.

One of these:
- 22M:016 Calculus for the Biological Sciences 4 s.h.
- 22M:025 Calculus I 4 s.h.

A more advanced calculus course

One of these:
- 010:001-010:002 Rhetoric I-II 8 s.h.
- 010:003 Accelerated Rhetoric 4 s.h.

Students denied admission to the major may reapply in a subsequent semester.

GENERAL EDUCATION COURSES

The department recommends that B.S. students in integrative physiology fulfill the College of Liberal Arts and Sciences General Education Program natural sciences requirement by taking 004:011 Principles of Chemistry I,
004:012 Principles of Chemistry II, and 002:010 Principles of Biology I. It also recommends completing the General Education Program social sciences requirement with 031:001 Elementary Psychology. Transfer credit for course work in the major requires the approval of the undergraduate academic advisor.

INTEGRATIVE PHYSIOLOGY REQUIREMENTS

All of these (10 s.h.):

- 027:053 Human Anatomy 3 s.h.
- 027:130 Human Physiology 3 s.h.
- 027:132 Human Physiology Laboratory 2 s.h.
- 027:151 Gross Anatomy Lab for Integrative Physiology 2 s.h.

At least 18 s.h. from these:

- 027:117 Human Growth and Motor Development 3 s.h.
- 027:141 Exercise Physiology 3 s.h.
- 027:143 Physiology of Nutrition 3 s.h.
- 027:145 Cardiovascular Physiology 3 s.h.
- 027:146 Molecules to Malady 3 s.h.
- 027:148 Physiology of Aging 3 s.h.
- 027:153 Embryology and Connective Tissue Anatomy 2 s.h.
- 027:155 Skeletal Muscle Biology 3 s.h.
- 027:160 Motor Control I: Neurophysiological Basis 3 s.h.
- 027:165 Introduction to Human Pharmacology 3 s.h.
- 027:195 Undergraduate Independent Study arr.
- 027:197 Biomechanics of Human Motion 4 s.h.

REQUIREMENTS IN OTHER SUBJECTS (COGNATES)

Biology

Students must complete at least 8 s.h. beyond 002:010 Principles of Biology I, which is a prerequisite for admission to the major and for 002:011 Principles of Biology II.

- 002:010 Principles of Biology I (prerequisite for admission to major) 4 s.h.
- 002:011 Principles of Biology II 4 s.h.

At least 4 s.h. from these:

- 002:108 Vertebrate Zoology 4 s.h.
- 002:114 Cell Biology 3 s.h.
- 002:124 Animal Physiology 3 s.h.
- 002:128 Fundamental Genetics 4 s.h.
- 002:143 Animal Behavior 4 s.h.
- 002:145 Introduction to Neurobiology 3 s.h.
- 002:150 Endocrinology 3 s.h.
- 002:155 Cell Physiology 4 s.h.
- 002:180 Fundamental Neurobiology 4 s.h.
- 002:181 Neurophysiology 3 s.h.
- 061:112 Pharmacy Microbiology 4 s.h.
- 061:157 General Microbiology 5 s.h.
- 061:164 Nursing Microbiology 4 s.h.
- 099:110 Biochemistry 3 s.h.
- 099:120 Biochemistry and Molecular Biology I 3 s.h.

Chemistry

Students must complete at least 4 s.h. beyond 004:011 Principles of Chemistry I, which is prerequisite for admission to the major and for 004:012 Principles of Chemistry II.
004:011 Principles of Chemistry I (prerequisite for admission to major) 4 s.h.
004:012 Principles of Chemistry II 4 s.h.

These additional courses are highly recommended.

004:121 Organic Chemistry I 3 s.h.
004:122 Organic Chemistry II 3 s.h.
004:141 Organic Chemistry Laboratory 3 s.h.

Mathematics

One of these:

22M:016 Calculus for the Biological Sciences 4 s.h.
22M:025 Calculus I 4 s.h.
22M:031 Engineering Mathematics I: Single Variable Calculus 4 s.h.

Physics

One of these sequences:

029:011-029:012 College Physics I-II 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.

Statistics

At least 3 s.h. from these:

07P:143 Introduction to Statistical Methods 3 s.h.
22S:101 Biostatistics 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
171:161 Introduction to Biostatistics 3 s.h.

RECOMMENDED ELECTIVES

The department recommends that students choose from the following electives in order to complete the 120 s.h. required for a B.S. in the College of Liberal Arts and Sciences. Courses in biology and chemistry also are listed under "Requirements in Other Subjects (Cognates)."

Anthropology

213:190 Human Osteology 3 s.h.

Biochemistry

099:110 Biochemistry 3 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.

Biology

002:108 Vertebrate Zoology 4 s.h.
002:114 Cell Biology 3 s.h.
002:124 Animal Physiology 3 s.h.
002:128 Fundamental Genetics 4 s.h.
002:143 Animal Behavior 4 s.h.
002:145 Introduction to Neurobiology 3 s.h.
002:150 Endocrinology 3 s.h.
<table>
<thead>
<tr>
<th>Department</th>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Cell Physiology</td>
<td>002:155</td>
<td>Cell Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>002:180</td>
<td>Fundamental Neurobiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>002:181</td>
<td>Neurophysiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Chemistry</td>
<td>004:111</td>
<td>Analytical Chemistry I</td>
<td>3 s.h.</td>
</tr>
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<td></td>
<td>004:112</td>
<td>Analytical Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>004:121</td>
<td>Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>004:122</td>
<td>Organic Chemistry II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>004:131</td>
<td>Physical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>004:141</td>
<td>Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Classics</td>
<td>20E:050</td>
<td>Word Power: Building English Vocabulary</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>20E:103</td>
<td>Medical and Technical Terminology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>Communication Sciences and Disorders</td>
<td>003:116</td>
<td>Basic Neuroscience for Speech and Hearing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>003:140</td>
<td>Manual Communication</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>Computer Science</td>
<td>06K:070</td>
<td>Computer Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>22C:001</td>
<td>Computer Literacy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>22C:005</td>
<td>Introduction to Computer Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>22C:016</td>
<td>Computer Science I: Fundamentals</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>057:017</td>
<td>Computers in Engineering</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Education</td>
<td>07C:185</td>
<td>Introduction to Substance Abuse</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Engineering</td>
<td>057:010</td>
<td>Dynamics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>057:019</td>
<td>Mechanics of Deformable Bodies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>English</td>
<td>08N:050</td>
<td>Word Power: Building English Vocabulary</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>08N:080</td>
<td>Nonfiction Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Health and Sport Studies</td>
<td>028:138</td>
<td>Exercise Testing and Prescription</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>Microbiology</td>
<td>061:157</td>
<td>General Microbiology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td></td>
<td>061:164</td>
<td>Nursing Microbiology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>
**Pharmacology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>071:120</td>
<td>Drugs: Their Nature, Action, and Use</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>071:130</td>
<td>Drug Mechanisms and Actions</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Psychology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>031:063</td>
<td>Abnormal Psychology: Health Professions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:126</td>
<td>Behavioral Neuroscience</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:128</td>
<td>Psychopharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:129</td>
<td>Neurobiology of Learning and Memory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:152</td>
<td>Health Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:163</td>
<td>Abnormal Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:173</td>
<td>Substance Use and Misuse in America</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Radiation Biology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>077:103</td>
<td>Radiation Biology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Bachelor of Science in Athletic Training**

The Bachelor of Science in athletic training requires a minimum of 120 s.h., including 57-58 s.h. of work for the major. The program provides concentrated studies and clinical experiences leading to national certification in athletic training.

Athletic trainers work with physically active individuals, including athletes, to help prevent injuries, offer advice about appropriate equipment, recognize and evaluate injuries, administer emergency treatment, and determine need for specialized medical care. Athletic trainers also work as part of health care teams involved in rehabilitation after injuries sustained in sports or physical activity.

Employment opportunities for graduates include work as health care professionals for sports medicine clinics and hospitals. Additional education usually is required for employment with professional teams as well as for university, college, and secondary school athletic teams. Teacher certification is recommended but not required.

Students who have not formally contacted the athletic training program director before enrolling at The University of Iowa should talk to an athletic training advisor or their academic advisor upon entering the University. Early advising for course selection is vital to ensure that students take prerequisites and sequenced skill development courses in the right order. Students should begin taking prerequisites for required major courses during their first year and should complete their final prerequisites after admission to the athletic training major.

In addition to requirements for the major, students must complete the College of Liberal Arts and Sciences General Education Program.

For current information on rules, procedures, and curriculum, contact the athletic training program director.

**PREREQUISITE FOR APPLICATION**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:096</td>
<td>Exploring Athletic Training</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**PREREQUISITES FOR COURSE WORK IN THE MAJOR**

Prerequisites total 34-36 s.h., as follows:

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:002</td>
<td>Introductory Animal Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:010</td>
<td>Principles of Biology I</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

One of these sequences:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:007-004:008</td>
<td>General Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>
004:011-004:012 Principles of Chemistry I-II

One of these:
029:008 Basic Physics 4 s.h.
029:011 College Physics I 4 s.h.

All of these:
07P:075 Educational Psychology and Measurement 3 s.h.
22S:025/07P:025 Elementary Statistics and Inference 3 s.h.
027:053 Human Anatomy 3 s.h.
027:057 Basic Athletic Training 3 s.h.
028:032 First Aid and CPR (or community certifications) 2 s.h.
028:075 Health in Everyday Life (pathology is recommended substitute) 3 s.h.
031:001 Elementary Psychology 3 s.h.

REQUIRED COURSE WORK IN THE MAJOR

Students complete 57-58 s.h., as follows.

One of these:
027:140 Exercise Physiology for Practitioners 3 s.h.
027:141 Exercise Physiology 3 s.h.

One of these:
071:120 Drugs: Their Nature, Action, and Use 2 s.h.
071:130 Drug Mechanisms and Actions 3 s.h.

All of these:
07C:199 Counseling for Related Professions 3 s.h.
027:036-027:037 Practicum in Athletic Training I-II 4 s.h.
027:130 Human Physiology 3 s.h.
027:143 Physiology of Nutrition (or equivalent) 3 s.h.
027:171 Administration of Athletic Training Programs 2 s.h.
027:172 Clinical Sciences I 2 s.h.
027:180 Advanced Emergency Care for Athletic Trainers 2 s.h.
027:182-027:183 Clinical Sciences III-IV 6 s.h.
027:185 Clinical Sciences V: Rehabilitation 2 s.h.
027:186 Practicum in Athletic Training III (must be taken twice) 3 s.h.
027:197 Biomechanics of Human Motion 4 s.h.
027:253 Advanced Human Anatomy 6 s.h.
076:187 Practicum in Athletic Training IV (must be taken twice) 4 s.h.

College of Liberal Arts and Sciences students may be admitted to the athletic training major and begin clinical experience as sophomores. Applicants to the program must meet the following requirements:

- completion of at least 11 s.h. of graded college credit, including 027:096 with a grade of C or higher; course work taken pass/fail cannot be counted; and
- a g.p.a. of at least 2.50 on all undergraduate course work.

Preference is given to applicants with high scholastic standing, strong writing skills, and varied athletic training and health care experience. A personal interview may be required; the athletic training program contacts applicants invited for interviews.

Fulfillment of admission requirements does not ensure admission to the athletic training major. The program selects candidates who appear to be best qualified for the study and practice of athletic training. Students denied admission to the major may reapply in a subsequent fall semester.
All students admitted to the major in athletic training are required to comply with entrance and periodic health screening history and immunization, which is coordinated through the program's medical director.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Students must be admitted to the integrative physiology or athletic training majors on schedule in order to complete a four-year graduation plan.

B.S. in Integrative Physiology

Before the third semester begins: calculus, one other course in the major, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least five more courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least six more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S. in Athletic Training

Before the third semester begins: three courses in the major and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: six courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: nine courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester: 12 courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn a degree with honors in integrative physiology. Students must be members of the University of Iowa Honors Program and must maintain a cumulative University of Iowa g.p.a. of at least 3.33. They must complete the honors research course sequence, 027:198 Honors Research I and 027:199 Honors Research II, and produce a written thesis that is deposited with the University of Iowa Honors Program. Honors candidates must make an oral presentation of the research and written thesis they completed in 027:198 Honors Research I and 027:199 Honors Research II, and the research and thesis must be judged to be of honors quality in order for the candidate to graduate with honors.

Minor

The minor in integrative physiology requires a minimum of 15 s.h. in Department of Integrative Physiology courses, including 12 s.h. in 100-level courses. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit cannot be counted toward the minor.

College-level courses in mathematics, chemistry, and biology usually are required as prerequisite work for integrative physiology courses. Students seeking a minor in integrative physiology should have sufficient preparation in the supporting sciences before they take advanced courses in the department.

Students choose courses for the minor from the following list. Bachelor of Science students majoring in integrative physiology have priority for enrollment in 027:132 Human Physiology Laboratory, 027:142 Exercise Physiology Laboratory, 027:151 Gross Anatomy Lab for Integrative Physiology, and 027:197 Biomechanics of Human Motion; other students must have special permission to enroll in these courses.

027:053 Human Anatomy 3 s.h.
Graduate Programs

The Department of Integrative Physiology offers a Master of Science in exercise science, with or without thesis, and a Doctor of Philosophy in integrative physiology. The M.S. with thesis is a research-oriented program designed for students planning to pursue a Ph.D. The M.S. without thesis is a terminal degree intended for athletic training students.

Master of Science with Thesis

The Master of Science with thesis requires a minimum of 30 s.h. of graduate credit. It is a research-oriented program designed primarily as a first step in graduate study leading to the Doctor of Philosophy. It introduces students to the nature and quality of research in integrative physiology and gives them an opportunity to specialize in an area of interest.

The M.S. with thesis offers five specialization areas: anatomy, athletic training, biomechanics, exercise and integrative physiology, and motor control.

Because the M.S. with thesis is regarded as the first step toward the Ph.D., the required undergraduate background course work depends on the area in which the candidate intends to specialize for doctoral study. Specific undergraduate courses in mathematics, chemistry, physics, biology, physiology, or psychology are required as prerequisites to some areas of specialization. These courses must be approved by the M.S. advisor and the professor in charge of the student's chosen specialization area.

The M.S. with thesis requires the following course work (total of 30 s.h.).

### COURSES OUTSIDE THE SPECIALIZATION AREA

Two of these:

- 027:141-027:142 Exercise Physiology - Exercise Physiology Laboratory (not for students specializing in physiology) 5 s.h.
- 027:153 Embryology and Connective Tissue Anatomy 2 s.h.
- 027:155 Skeletal Muscle Biology (not for students specializing in motor control) 3 s.h.
- 027:160 Motor Control I: Neurophysiological Basis (not for students specializing in motor control) 3 s.h.
- 027:197 Biomechanics of Human Motion (not for students specializing in biomechanics) 4 s.h.
- 027:253 Advanced Human Anatomy (not for students specializing in anatomy or athletic training) 6 s.h.

### CORE COURSE REQUIREMENT

One of these:

- 22S:101 Biostatistics 3 s.h.
- 22S:102 Introduction to Statistical Methods 3 s.h.

### SPECIALIZATION AREA COURSES
Master of Science Without Thesis

The Master of Science without thesis requires a minimum of 30 s.h. of graduate credit, with a g.p.a. of at least 3.00. It is a terminal degree, intended for athletic training students. The program provides advanced study in clinical education and research for certified athletic trainers. It emphasizes development of a base of research and education, and application of that base to the knowledge and skills of the entry-level athletic trainer. Its focus is on a health care team approach to sports medicine, medical care management, wellness, pediatric/adolescent health, and special health populations.

The following undergraduate course work (total of 30 s.h.) is required background for the M.S. nonthesis program in athletic training. Students must have a g.p.a. of 3.00 in the required background course work.

Anatomy
Human anatomy: at least 3 s.h.
Human physiology: 3 s.h.

Athletic training core
Prevention: 3 s.h.
Evaluation and recognition: 3 s.h.
Modalities and rehabilitation: 3 s.h.
Administration: 2 s.h.

Integrative physiology core
Neural control: 3 s.h.
Exercise physiology: 3 s.h.
Biomechanics or kinesiology: 3 s.h.

Electives in related areas: 3-4 s.h.

Current emergency certifications
NATA certification

For the M.S. without thesis, students must complete 20 of the required 30 s.h. in integrative physiology. The degree requires the following course work.

INTEGRATIVE PHYSIOLOGY

Three of these:
027:141 Exercise Physiology 3 s.h.
027:145 Cardiovascular Physiology 3 s.h.
027:146 Molecules to Malady 3 s.h.
027:150 Gross Anatomy for Integrative Physiology 3 s.h.
027:153 Embryology and Connective Tissue Anatomy 2 s.h.
027:155 Skeletal Muscle Biology 3 s.h.
027:160 Motor Control I: Neurophysiological Basis 3 s.h.
027:197 Biomechanics of Human Motion 4 s.h.
027:253 Advanced Human Anatomy 6 s.h.

CLINICAL RESEARCH TOOLS

07P:243/22S:148 Intermediate Statistical Methods 4 s.h.
An approved tools or special interest area course 2-4 s.h.

ATHLETIC TRAINING

027:184 Seminar in Athletic Training 1-4 s.h.
027:200 Problems (repeatable) 2 s.h.
027:202 Practicum in College Teaching 3 s.h.
027:301 Non-Thesis Seminar 2 s.h.

One of these:
07P:205 Design of Instruction 3 s.h.
069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
173:140 Epidemiology I: Principles 3 s.h.

ELECTIVES

Maximum of 4 s.h.

Doctor of Philosophy

The Doctor of Philosophy in integrative physiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students should have a strong background in the natural sciences, a working knowledge of statistics and research methodology, and a specific interest in at least one area of specialization in the department. Students can acquire additional knowledge of statistics and research methodology after entering the program.

The Ph.D. program offers four specialization areas: anatomy, biomechanics, integrative physiology, and motor control.

All Ph.D. students must complete a dissertation in their specialization area and must submit an appropriate manuscript of the dissertation to a refereed professional journal for publication.

Many of the courses in the specialization areas are offered by departments other than integrative physiology. Faculty members from these departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of a candidate’s prospectus. They also participate in the final oral examination.

The Ph.D. requires the following course work.

GENERAL REQUIREMENTS

At least 72 s.h. of graduate credit beyond the B.A. or B.S.
At least 10 s.h. of independent research, exclusive of the thesis requirement

CORE COURSE REQUIREMENTS

Two approved courses in statistics 6 s.h.
027:201 Research 10 s.h.
027:202 Practicum in College Teaching 2 s.h.
027:405 Thesis: Ph.D. 12 s.h.
650:270 Principles of Scholarly Integrity 1 s.h.

SCIENTIFIC AREA COURSES

In order to ensure that integrative physiology Ph.D. students obtain a breadth of knowledge over the key scientific areas that constitute the basis of the major, each student must complete at least one course in each specialization area. This requirement may be met by transfer credit if approved by the student's advisor. The areas of specialization are anatomy, biomechanics, integrative physiology, and motor control.

Specializations

Candidates are expected to obtain a broad knowledge base within their area of specialization. This normally entails approximately 30 s.h. of course work. The following courses are recommended choices for each area of specialization.

ANATOMY

002:128 Fundamental Genetics 4 s.h.
002:150 Endocrinology 3 s.h.
027:153 Embryology and Connective Tissue Anatomy 2 s.h.
027:155 Skeletal Muscle Biology 3 s.h.
027:253 Advanced Human Anatomy 6 s.h.
060:205 General Histology for Graduate Students 4 s.h.
060:234 Medical Neuroscience 4 s.h.
077:103 Radiation Biology 4 s.h.
099:110 Biochemistry 3 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
142:220 Protein Biogenesis, Transport, and Degradation in the Secretory/Endocytic System 1 s.h.
142:225 Growth Factor Receptor Signaling 1 s.h.

One of these:
003:219 Fundamentals of Laboratory Instrumentation 3 s.h.
101:212 Biomedical Instrumentation and Measurement 4 s.h.

**BIOMECHANICS**

027:253 Advanced Human Anatomy 6 s.h.
057:019 Mechanics of Deformable Bodies 3 s.h.
057:020 Fluid Mechanics 4 s.h.
101:212 Biomedical Instrumentation and Measurement 4 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.

**INTEGRATIVE PHYSIOLOGY**

002:128 Fundamental Genetics 4 s.h.
002:150 Endocrinology 3 s.h.
027:141 Exercise Physiology 3 s.h.
027:142 Exercise Physiology Laboratory 2 s.h.
027:145 Cardiovascular Physiology 3 s.h.
027:146 Molecules to Malady 3 s.h.
027:241 Integrative Physiology Seminar 1 s.h.
027:253 Advanced Human Anatomy 6 s.h.
050:240 Human Organ Systems 8 s.h.
060:205 General Histology for Graduate Students 4 s.h.
071:130 Drug Mechanisms and Actions 3 s.h.
072:153 Graduate Physiology 4 s.h.
077:103 Radiation Biology 4 s.h.
077:222 Free Radicals in Biology and Medicine 4 s.h.
099:110 Biochemistry 3 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.

**MOTOR CONTROL**

027:155 Skeletal Muscle Biology 3 s.h.
027:160 Motor Control I: Neurophysiological Basis 3 s.h.
027:197 Biomechanics of Human Motion 4 s.h.
027:253 Advanced Human Anatomy 6 s.h.
027:314 Seminar in Motor Control 1 s.h.
051:150 Musculoskeletal Biomechanics 3 s.h.
057:019 Mechanics of Deformable Bodies 3 s.h.
060:234 Medical Neuroscience 4 s.h.
101:212 Biomedical Instrumentation and Measurement 4 s.h.
101:275 Analysis of Sensori-Motor Systems in Health and Disease 3 s.h.
101:285 Biomechanical Analysis in Rehabilitation 3 s.h.
Courses chosen from the following areas: computer science, neuroscience, anatomy, exercise physiology, psychology

Admission

Admission to the graduate programs in exercise science (M.S.) and integrative physiology (Ph.D.) is based on grade-point average and score on the Graduate Record Examination (GRE) General Test. Applicants to the M.S. programs must have an undergraduate g.p.a. of at least 3.00. Applicants to the Ph.D. program must have a g.p.a. of at least 3.00 on both undergraduate and previous graduate work.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Deadlines for admission applications are October 15, March 15, and May 15; notification is made approximately two months after the respective application deadline.

Facilities

Classroom and research laboratories for anatomy, biomechanics, exercise physiology, and motor control are located in the Field House and in other buildings on campus. They provide excellent facilities for instruction and research at both the undergraduate and graduate levels.

Cooperative efforts with other departments facilitate specialization by allowing integrative physiology students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, molecular physiology and biophysics, orthopaedic surgery, internal medicine, pharmacology, and the College of Engineering).

Integrative Physiology Courses

Primarily for Undergraduates

027:036 Practicum in Athletic Training I
Basic clinical skill instruction, evaluation, and integration for athletic trainers. Prerequisite: athletic training major. 2 s.h.

027:037 Practicum in Athletic Training II
Integration of basic physical skills and orientation to traditional settings; clinical experience for first-year students arranged through the athletic training program. Prerequisite: grade of C or higher in 027:036. 2 s.h.

027:053 Human Anatomy
General human anatomy covering most systems of the body. GE: Natural Sciences. 3 s.h.

027:054 Human Anatomy Laboratory
All major systems of the human body, understood through computer-generated images, models, histological slides, anatomical specimens. 1 s.h.

027:056 First Aid and CPR
American Red Cross certification: basic first aid, CPR procedures. 2 s.h.

027:057 Basic Athletic Training
Basic pathology, epidemiology, materials biology for prevention and immediate care of athletic injuries. 3 s.h.

027:090 Scientific Basis of Human Movement
Survey of scientific principles that underlie human movement; emphasis on biomechanical and physiological contributions. 3 s.h.

027:096 Exploring Athletic Training
Exploration of professional preparation for athletic trainers; application, career opportunities, professional organizations, awareness of basic athletic training principles. arr.

027:117 Human Growth and Motor Development
3 s.h.
Human growth and biological maturation; focus on motor development from birth through puberty. Offered fall semesters. Recommended: anatomy, human physiology, or animal biology course.

027:198 Honors Research I
Research for honors thesis; selection of faculty mentor, preparation of research proposal, written and oral presentations of research proposal, literature review, participation in experiments designed to develop laboratory skills for research; first of a two-semester sequence. Prerequisite: honors standing.

027:199 Honors Research II
Completion of honors research begun in 027:198, analysis of data, writing and oral presentation of honors thesis; second of a two-semester sequence. Prerequisites: honors standing and grade of B or higher in 027:198.

For Undergraduate and Graduate Students

027:130 Human Physiology
Organ system approach to physiology, with focus on normal function of the human body; information on all levels of integration, from submolecular to whole organism, with emphasis on how the intact organism functions. GE: Natural Sciences.

027:132 Human Physiology Laboratory
Fundamental laboratory measurements; major physiological systems, experimental design, presentation of experimental data. Pre- or corequisite: 027:130 or equivalent.

027:140 Exercise Physiology for Practitioners
Effects of acute and chronic exercise on different physiological systems (energy, respiratory, circulatory, endocrine); fitness evaluation, weight-control strategies, training programs; preparation for ACSM Fitness Instructor Certification. Recommended: human physiology course.

027:141 Exercise Physiology
Mechanisms responsible for the acute and chronic effects of exercise on the different organ systems of the body. Offered fall semesters. Prerequisite: 027:130 or equivalent.

027:142 Exercise Physiology Laboratory
Supplements 027:141; principles of scientific investigation used to demonstrate acute and chronic effects of exercise. Prerequisite: consent of instructor.

027:143 Physiology of Nutrition
Metabolic and biological aspects of human energy production, relationship to energy consumption; systems or integrative approach.

027:145 Cardiovascular Physiology
Structure and function of cardiovascular system; heart, microcirculation, hemodynamics, regional circulation, reflex integration, regulation during physical stress. Prerequisite: 027:130 or equivalent. Recommended: calculus and physics.

027:146 Molecules to Malady
Changes in single molecules that lead to systemic physiological alterations in mammals; relationship of these changes to development, aging, exercise, and specific diseases; current methodologies for studying mammalian genetics and physiology. Prerequisite: 027:130 or equivalent.

027:148 Physiology of Aging
Aging's effects on cells, tissues, and organs; how aging influences function of major body organ systems and the whole organism; physiological mechanisms that underlie agerelated changes in body function and performance; integrative approach with focus on human aging. Prerequisites: 027:053 and 027:130, or equivalents.

027:150 Gross Anatomy for Integrative Physiology
Major systems of the body with emphasis on the nervous, muscular, connective tissue systems related to movement. Offered fall semesters. Prerequisite: integrative physiology major.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>027:151</td>
<td>Gross Anatomy Lab for Integrative Physiology</td>
<td>2 s.h.</td>
<td>Major systems of the body with emphasis on nervous, cardiovascular, muscular systems related to movement. Offered fall semesters. Prerequisite: integrative physiology major.</td>
</tr>
<tr>
<td>027:153</td>
<td>Embryology and Connective Tissue Anatomy</td>
<td>2 s.h.</td>
<td>Structure, growth, and development of connective, muscular, nerve tissues from embryologic to adult stages; specific joints, their structure and movements. Offered spring semesters.</td>
</tr>
<tr>
<td>027:155</td>
<td>Skeletal Muscle Biology</td>
<td>3 s.h.</td>
<td>Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters.</td>
</tr>
<tr>
<td>027:160</td>
<td>Motor Control I: Neurophysiological Basis</td>
<td>3 s.h.</td>
<td>Neuroanatomical and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Prerequisite: anatomy or human physiology course.</td>
</tr>
<tr>
<td>027:165</td>
<td>Introduction to Human Pharmacology</td>
<td>3 s.h.</td>
<td>General pharmacology (e.g., administration, distribution, and elimination of drugs, dose response curves, adverse effects, placebos, homeopathy); pharmacotherapy of selected human diseases, pathophysiologic aspects of the disease, how different classes of drugs modify pathophysiologic effects to restore health or reduce disease's impact; focus on mechanisms of drug actions in humans; adverse effects, pharmacokinetic considerations, drug interactions; how to write prescriptions. Prerequisite: 027:130 or equivalent.</td>
</tr>
<tr>
<td>027:171</td>
<td>Administration of Athletic Training Programs</td>
<td>2 s.h.</td>
<td>Health care supervision, professional athletic training responsibilities, philosophies in athletic health care. Offered fall semesters. Prerequisite: 027:057.</td>
</tr>
<tr>
<td>027:172</td>
<td>Clinical Sciences I</td>
<td>2 s.h.</td>
<td>Theoretical knowledge base in therapeutic modalities. Offered spring semesters. Prerequisite: grade of C or higher in 027:036.</td>
</tr>
<tr>
<td>027:173</td>
<td>Clinical Sciences II</td>
<td>1 s.h.</td>
<td>Orientation for musculoskeletal evaluation and equipment fit techniques. Offered summer sessions. Prerequisites: 027:172 and athletic training major.</td>
</tr>
<tr>
<td>027:180</td>
<td>Advanced Emergency Care for Athletic Trainers</td>
<td>1-2 s.h.</td>
<td>Coordinated initial professional emergency response certifications for athletic trainers; recertification for those holding valid certifications. Prerequisites: Red Cross First Aid and CPR certifications, or consent of instructor.</td>
</tr>
<tr>
<td>027:182</td>
<td>Clinical Sciences III</td>
<td>3 s.h.</td>
<td>Theoretical and practical skill development in the areas of musculoskeletal evaluation for ankle, knee, shoulder, and upper extremity. Offered fall semesters. Prerequisites: 027:173 and athletic training major.</td>
</tr>
<tr>
<td>027:183</td>
<td>Clinical Sciences IV</td>
<td>3 s.h.</td>
<td>Continuation of musculoskeletal evaluation, completion of EENT, chest, abdomen, and dermatologic evaluation; integration of rehabilitation programs. Offered spring semesters. Prerequisite: grade of C or higher in 027:182.</td>
</tr>
<tr>
<td>027:184</td>
<td>Seminar in Athletic Training</td>
<td>1-4 s.h.</td>
<td>Educational issues faced by approved clinical instructors in athletic training education programs. Offered fall semesters. Prerequisite: graduate standing.</td>
</tr>
<tr>
<td>027:185</td>
<td>Clinical Sciences V: Rehabilitation</td>
<td>2 s.h.</td>
<td>Rehabilitation for athletic trainers based on the theory and principles of therapeutic exercise; application of current research concepts. Prerequisites: 027:172 and athletic training major. Corequisite: 027:182.</td>
</tr>
<tr>
<td>027:186</td>
<td>Practicum in Athletic Training III</td>
<td>3 s.h.</td>
<td>Advanced clinical skill instruction, evaluation, and integration for athletic trainers. Prerequisite: grade of C or higher in 027:037.</td>
</tr>
</tbody>
</table>
027:195 Undergraduate Independent Study
Library or laboratory research related to a specific topic in human physiology, normally culminating with a written manuscript; work directed by a faculty member.

027:197 Biomechanics of Human Motion
4 s.h.
Application of the principles of mechanics to investigation of human motion in two dimensions; system modeling, force system and equilibrium analysis, particle and rigid body kinematics, Newton's and Euler's equations of motion, work-energy and impulse-momentum integral principles. Offered spring semesters.

Primarily for Graduate Students

027:200 Problems
Repeatable. Prerequisite: consent of instructor.

027:201 Research
Repeatable. Prerequisite: consent of instructor.

027:202 Practicum in College Teaching
Prerequisite: consent of instructor.

027:241 Integrative Physiology Seminar
1 s.h.
Current topics in cardiovascular physiology, vascular biology, free radical biology. Repeatable.

027:253 Advanced Human Anatomy
6 s.h.
Offered summer sessions.

027:301 Non-Thesis Seminar
2 s.h.
For candidates for the M.S. without thesis. Offered spring semesters.

027:314 Seminar in Motor Control
1 s.h.
Current topics in neural control of movement, biomechanics, and rehabilitation sciences. Repeatable.

027:404 Thesis: M.S.
0-4 s.h.
Repeatable.

027:405 Thesis: Ph.D.
Repeatable.
Interdepartmental Studies

Coordinator: David Gould
Degree: B.A. in Interdepartmental Studies
Web site: http://www.uiowa.edu/~indepart

The Interdepartmental Studies Program (ISP) provides an alternative to traditional undergraduate majors. It gives students the opportunity to design an individualized study plan or to choose a preapproved plan in one of three areas—business studies, health science, or recreation management. Each plan includes course work from a variety of departments.

Undergraduate Program

The program offers a Bachelor of Arts in interdepartmental studies. It does not offer a minor.

B.A. with Double Major or Second Degree

Interdepartmental studies students may earn a second Bachelor of Arts major (a double major). They may count a maximum of two of the same courses toward the requirements of both majors.

Students also may earn a second undergraduate degree (for example, a Bachelor of Science) while working toward a B.A. in interdepartmental studies.

See Earning Two or More Majors and Earning Multiple Undergraduate Degrees under Earning a Degree in the CLAS Student Academic Handbook.

B.A. with Certificates, Minors

Interdepartmental studies students also may earn certificates and minors in other programs, departments, or colleges. Courses used to meet requirements for a minor may not be counted toward the requirements for the major in interdepartmental studies.

See Certificates and Minors under Earning a Degree in the CLAS Student Academic Handbook.

Bachelor of Arts

The Bachelor of Arts in interdepartmental studies requires a minimum of 120 s.h., including 36-40 s.h. of work for the major. Students choose one of four tracks: individualized plan of study, business studies, health science, or recreation management. Credit required for the major depends on choice of track.

The individualized plan of study track requires students to design and gain approval for their own study plan. The business studies track, health science track, and recreation management track each provide a preapproved plan of study and a choice of emphasis areas.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Individualized Plan of Study Track

The individualized plan of study track requires a minimum of 36 s.h. of work for the major, all taken at The University of Iowa. Students who choose the individualized plan of study track build their own study plan, creating a unique major that speaks to interests across departments and that integrates varied approaches to a particular topic (e.g., aging studies, international business, children's studies, environmental issues, health issues).

Students must submit their study plan for approval. The plan must include an essay that provides a clear statement of the area of intellectual focus; the reasons for preferring the ISP to any departmental program; a concrete discussion of how the advanced courses relate to each other, to personal interests, and to the central focus of the study plan; a description of academic goals for the bachelor's degree; a list of advanced-level course work already completed; and a list of advanced-level course work planned for all remaining semesters.

Each study plan is approved by a faculty advisory committee. Reviews are held once a semester. Deadlines are posted on the Interdepartmental Studies Program web site.

If the committee does not grant approval, the study plan may be returned to the student for revisions and resubmission at the next committee meeting. In some cases, the student may be referred to an appropriate departmental major.

Students are required to take the courses approved in the study plan. A limited number of substitutions may be allowed, but only if they are clearly consistent with the area of intellectual focus in the approved study plan, and only if they are approved in advance by the ISP advisor. Unauthorized substitutions may be designated as elective course work.
Significant changes in the focus of a student's study plan require the submission and approval of a revised study plan. The student's academic advisor determines whether changes warrant a revised plan.

See the Interdepartmental Studies Program web site for up-to-date information on the individualized plan of study track and rules for submission of study plans.

Students who choose the individualized plan of study track are advised by the Interdepartmental Studies Program coordinator and work closely with the Interdepartmental Studies Program office while designing the study plan. Students who intend to submit a study plan should contact the Interdepartmental Studies Program coordinator as early as possible.

**Business Studies Track**

The business studies track requires 36-40 s.h. of work for the major. It provides a preapproved plan of study that combines a generalized business background with a choice of three emphasis areas: workplace practices and perspectives, values and ethics, and arts management. Students also have the option of proposing their own business-related emphasis area to the faculty advisory committee.

Students must have achieved second-year standing to declare the business studies track.

Business studies track students must complete foundation course work (17-19 s.h.), business electives (5-6 s.h.), and one emphasis area (15 s.h.). A minimum of 15 s.h. for the major must be completed at The University of Iowa. The Academic Advising Center advises business studies track students; contact the center for more information about requirements.

**Foundation Courses**

Foundational math--all of these:

- 22M:017 Calculus and Matrix Algebra for Business 4 s.h.
- 22S:008 Statistics for Business 4 s.h.
  or
- 22S:025 Elementary Statistics and Inference 3 s.h.

Foundational economics--both of these:

- 06E:001 Principles of Microeconomics 4 s.h.
- 06E:002 Principles of Macroeconomics 4 s.h.

Foundational accounting--one of these:

- 06A:001 Introduction to Financial Accounting 3 s.h.
- 06T:050 Foundations in Entrepreneurship (if not used as business elective) 2 s.h.

**Business Electives**

Two of these:

- 06A:002 Managerial Accounting 3 s.h.
- 06E:071 Statistics for Strategy Problems 3 s.h.
- 06F:100 Introductory Financial Management 3 s.h.
- 06J:047 Introduction to Law 3 s.h.
- 06J:048 Introduction to Management 3 s.h.
- 06K:100 Operations Management 3 s.h.

- 06K:070 Computer Analysis 3 s.h.
  or
- 22C:001 Computer Literacy 3 s.h.

- 06M:100 Introduction to Marketing Strategy 3 s.h.
or
06T:050 Foundations in Entrepreneurship (if not used in foundational accounting requirement) 2 s.h.

Workplace Practices and Perspectives Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the workplace practices and perspectives emphasis must complete at least one course from each of four components (speaking and writing, foundations and practices, cultural diversity, and entrepreneurship). The required 15 s.h. must include 9 s.h. earned in advanced courses (100 level or above). Advanced courses for each component are listed below.

Speaking and Writing Component

At least one chosen from these or from the advanced-level courses:

08C:001 Creative Writing Studio Workshop 3 s.h.
08N:020 Introduction to Creative Nonfiction 3 s.h.
20E:050/08N:050 Word Power: Building English Vocabulary 3 s.h.
036:012 Interpersonal Communication 3 s.h.
036:015 Persuasive Communication 3 s.h.
036:016 Business and Professional Communication 3 s.h.
036:017 Theory and Practice of Argument 4 s.h.
036:020/049:042 Clothing as Nonverbal Communication 3 s.h.
036:021/07E:021 Oral Interpretation 3 s.h.

Advanced-level courses:

01J:115/033:115 What is Storytelling For? 3 s.h.
06B:140 Business Writing 3 s.h.
08A:104 Personal Writing for Non-English Majors 3 s.h.
08A:113 Writing for Business and Industry for Non-English Majors 3 s.h.
08C:023 Creative Writing 3 s.h.
08C:097 Fiction Writing 3 s.h.
08C:108 Creative Writing for New Media 3 s.h.
08N:080 Nonfiction Writing 3 s.h.
08N:104 Personal Writing 3 s.h.
08N:113 Writing for Business and Industry 3 s.h.
08N:120 Advanced Nonfiction Writing 3 s.h.
08N:133 Advanced Writing for Business 3 s.h.
036:061 Persuasion in Society 3 s.h.
036:158/010:141 Rhetoric and Past Public Controversy 3 s.h.
113:100/08L:100/103:100 Introduction to Linguistics 3 s.h.
145:101 Creative Writing for Business 3 s.h.

Foundations and Practices Component

At least one chosen from these or from the advanced-level courses:

019:090 Social Scientific Foundations of Communication 3 s.h.
019:091 Cultural and Historical Foundations of Communication 3 s.h.
019:095 Media and Consumers 3 s.h.
036:001 Core Concepts in Communication Studies 3 s.h.
113:014 Language, Culture, and Communication 3 s.h.

Advanced-level courses:

034:162/131:060 Work and Family Institutions 3 s.h.
036:070 Communication and Everyday Life 3 s.h.
036:074 Media and Society 3 s.h.
036:143/010:131 Classical Rhetoric and Greek Culture 3 s.h.

Cultural Diversity Component

At least one chosen from these or from the advanced-level courses:
01H:003 Art of Pre-Columbian America, Native America, and Oceania  
08G:005/149:005 Literatures of Native American Peoples  
08G:011 Literature and Sexualities  
016:040 Perspectives: Diversity in American History  
16A:065/129:065 Introduction to African American History  
025:080 Jazz Cultures in America and Abroad  
032:016 Religion and Liberation  
032:060/149:060 Introduction to Native American Religions  
034:018/131:018 Gender and Society  
034:066 Social Inequality  
113:051 Diversity in Action in American Society  
129:060 Introduction to African American Society  
129:061/045:045 Introduction to African American Culture  
131:010 Introduction to Gender, Women's, and Sexuality Studies  
131:055 Gender, Race, and Class in the U.S.  
149:049/045:049 Introduction to American Indian and Native Studies  

Advanced-level courses:

07B:154 Education, Race, and Ethnicity  
07U:133 The Culturally Different in Diverse Settings  
008:118 Jewish American Literature  
16A:104/158:100 History of the American Deaf Community  
16A:106 Disability in American History  
16A:112 Mexican American History  
019:165/129:122 African Americans and the Media  
025:141 History of Jazz  
042:112/096:112 Human Sexuality, Diversity, and Society  
103:150/113:173 Language and Gender  
113:110/149:110 Native Peoples of North America  

Entrepreneurship Component

At least one of these (all are advanced-level courses):

06E:119 Policy Analysis  
06T:120 Entrepreneurship and Innovation  
06T:133 Entrepreneurial Finance  
06T:134 Entrepreneurial Marketing  
06T:145 Legal Aspects of Entrepreneurship  
06T:146 Strategic Management of Technology and Innovation  
06T:147 Social Entrepreneurship  
06T:148 E-Commerce Strategies for Entrepreneurs  
06T:150 Managing the Growth Business  
06T:190 Seminar in Entrepreneurship  
06T:192 Entrepreneurship: Business Consulting  
06T:194 Entrepreneurship: Advanced Business Planning  
145:198 Independent Study  
145:199 Interdepartmental Studies Practicum  

Values and Ethics Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the values and ethics emphasis must complete at least two courses from each of the two components (values and theories, institutions and policies).

Values and Theories Component

At least two of these:

019:140 Legal Issues in Mass Communication  

026:102 Introduction to Ethics 3 s.h.
026:135 Philosophy of Law 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
030:050 Introduction to Political Behavior 3 s.h.
030:117 Political Decision Making 3 s.h.
030:136 Strategy in Politics 3 s.h.
030:137 Introduction to Political Economy 3 s.h.
030:151 Political Leadership 3 s.h.
034:150 Political Sociology 3 s.h.

Institutions and Policies Component

At least two of these:

026:001 Problems of Moral Reasoning 3 s.h.
026:132 Introduction to Political Philosophy 3 s.h.
030:115 The Presidency 3 s.h.
030:116 American Constitutional Law and Politics 3 s.h.
030:118 American Political Development 3 s.h.
030:120 Public Administration and Bureaucratic Politics 3 s.h.
030:152 The Legislative Process 3 s.h.
030:153 The Judicial Process 3 s.h.
030:158 The Criminal Justice System 3 s.h.
034:040 Criminology 3 s.h.
034:066 Social Inequality 3 s.h.
034:162/131:160 Work and Family Institutions 3 s.h.
034:175 Community and Urban Sociology 3 s.h.
034:186 Criminal Legal System 3 s.h.

Arts Management Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the arts management emphasis must complete two courses from the administration component, one course from the history component, 3 s.h. from the production component, 3 s.h. from the elective component, and the internship (0 s.h.).

Administration Component

Two of these:


049:111/06T:125/145:111/188:111 New Ventures in the Arts 3 s.h.
or
06T:120 Entrepreneurship and Innovation 3 s.h.

History Component

One of these:

01H:002 Arts of Africa 3 s.h.
01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:016/039:016 Asian Art and Culture 3 s.h.
008:037 Introduction to Drama 3 s.h.
024:102/07S:112/097:115/113:103 Introduction to Museology 3 s.h.
025:014 Great Musicians 3 s.h.
025:080 Jazz Cultures in America and Abroad 3 s.h.
025:103 World Music 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
025:137/188:137 World of the Beatles 3 s.h.
025:141 History of Jazz 3 s.h.
045:075 American Popular Music 3 s.h.
049:002 Theatre and Society: Ancients and Moderns 3 s.h.
049:003 Theatre and Society: Romantics and Rebels 3 s.h.
137:080/188:080 Dance and Society 3 s.h.

Production Component

Complete 3 s.h. chosen from these:

01B:001 Elements of Art 3 s.h.
01P:180 Digital Portfolios in the Arts 1-3 s.h.
024:104 Exhibition Planning 3 s.h.
024:105 Designing History Exhibits 3 s.h.
025:173/188:173 Introduction to Afro-Cuban Drumming (only one enrollment may count toward major) 1 s.h.
049:001 Art of the Theatre 3 s.h.
049:020 Basic Acting 3 s.h.
049:043 Elements of Design 3 s.h.
049:044 Theatre Crafts 3 s.h.
049:133 Theatre Design I 3 s.h.
137:001 Beginning Tap (only one enrollment may count toward major) 1-2 s.h.
137:002 Beginning Jazz (only one enrollment may count toward major) 1-2 s.h.
137:003 Beginning Ballet (only one enrollment may count toward major) 1-2 s.h.
137:004 Beginning Modern Dance (only one enrollment may count toward major) 1-2 s.h.
137:012 Continuing Jazz (only one enrollment may count toward major) 1-2 s.h.
137:013 Continuing Ballet (only one enrollment may count toward major) 1-2 s.h.
137:014 Continuing Modern Dance (only one enrollment may count toward major) 1-2 s.h.
137:034 Beginning/Contact Improvisation (only one enrollment may count toward major) 1-2 s.h.
137:050 Dance Production 3 s.h.
137:060 Music Fundamentals in Dance 2 s.h.
137:174/188:174 Introduction to Afro-Cuban Dance (only one enrollment may count toward major) 1 s.h.
145:198 Independent Study arr.
145:199 Interdepartmental Studies Practicum arr.

Elective Component

One of these:

01P:185/024:170 Grant Writing in the Arts 3 s.h.
06J:048 Introduction to Management (if not already used to fulfill foundation course work requirement) 3 s.h.
06T:133 Entrepreneurial Finance 3 s.h.
06T:134 Entrepreneurial Marketing 3 s.h.
008:145/049:184 English Renaissance Drama 3 s.h.
019:140 Legal Issues in Mass Communication 3 s.h.
024:161/01H:182/033:175/091:192 Art, Law, and Ethics 3 s.h.
025:178 Music, Culture, and Identity 3 s.h.
113:003 Introduction to the Study of Culture and Society 3 s.h.
145:101 Creative Writing for Business 3 s.h.

Or complete 3 s.h. from these:

049:045/137:051 Production: Run Crew 1-2 s.h.
049:046 Production: Crew Chief 2 s.h.
025:064 Recital Attendance for Non-Majors 1 s.h.
025:074 Recital Attendance 1 s.h.

Internship

409:145 Internship in Interdepartmental Studies 0 s.h.
Health Science Track

The health science track requires 37 s.h. of work for the major. It provides a preapproved plan of study that combines a generalized health background with a varied choice of emphasis areas: multidisciplinary science, entrepreneurship, aging, sexuality studies, global health, and health coach. Students also have the option of proposing their own health science-related emphasis area to the faculty advisory committee.

Students must have achieved second-year standing to declare the health science track.

Health science track students must complete foundation course work (22 s.h.) and one emphasis area (15 s.h.). A minimum of 15 s.h. for the major must be completed at The University of Iowa. The Academic Advising Center advises health science track students; contact the center for more information about requirements.

Foundation Courses

Foundational chemistry--two of these:

- 004:007 General Chemistry I 3 s.h.
- 004:011 Principles of Chemistry I 4 s.h.
- 004:008 General Chemistry II 3 s.h.
- 004:012 Principles of Chemistry II 4 s.h.

Foundational biology--one of these:

- 002:002 Introductory Animal Biology 4 s.h.
- 002:010 Principles of Biology I 4 s.h.
- 002:021 Human Biology 4 s.h.

Foundational math and statistics--one of these:

- 22S:008 Statistics for Business 4 s.h.
- 22M:009 Elementary Functions 4 s.h.
- 22S:025/07P:025 Elementary Statistics and Inference 3 s.h.
- 22M:015 Mathematics for the Biological Sciences 4 s.h.
- 22M:016 Calculus for the Biological Sciences 4 s.h.
- 22M:017 Calculus and Matrix Algebra for Business 4 s.h.
- 22M:025 Calculus I 4 s.h.
- 22S:101 Biostatistics 3 s.h.
- 22S:102/07P:143 Introduction to Statistical Methods 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.

Foundational social science--one of these:

- 031:001 Elementary Psychology 3 s.h.
- 034:001 Introduction to Sociology Principles 3-4 s.h.
- 034:002 Social Problems 3-4 s.h.
- 113:003 Introduction to the Study of Culture and Society 3 s.h.
- 113:010 Anthropology and Contemporary World Problems 3 s.h.

Foundational science elective--one of these:

- 002:011 Principles of Biology II 4 s.h.
- 027:053 Human Anatomy 3 s.h.
- 060:110 Principles of Human Anatomy 3 s.h.

Foundational elective--one of these:

- 027:130 Human Physiology 3 s.h.
027:140 Exercise Physiology for Practitioners 3 s.h.
031:014 Introduction to Developmental Science 3 s.h.
096:030/153:030 Human Development and Behavior 3 s.h.
169:045 Health for Living 3 s.h.

145:125 Contemporary Nutrition 3 s.h.
or
027:143 Physiology of Nutrition 3 s.h.

**Multidisciplinary Science Emphasis**

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the multidisciplinary science emphasis must complete 15 s.h. chosen from these.

002:114 Cell Biology 3 s.h.
002:128 Fundamental Genetics 3-4 s.h.
002:145 Introduction to Neurobiology 3 s.h.
002:150 Endocrinology 3 s.h.
08C:107/145:107 Creative Writing for the Health Professions 3 s.h.
061:157 General Microbiology 5 s.h.
099:110 Biochemistry 3 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
145:127 Nutrition in Health and Performance 3 s.h.
145:198 Independent Study arr.
145:199 Interdepartmental Studies Practicum arr.

004:121 Organic Chemistry I 3 s.h.
or
004:123 Organic Chemistry I for Majors 3 s.h.

004:122 Organic Chemistry II 3 s.h.
or
004:124 Organic Chemistry II for Majors 3 s.h.

004:141 Organic Chemistry Laboratory 3 s.h.
or
004:142 Organic Chemistry Laboratory for Majors 3 s.h.

061:112 Pharmacy Microbiology 4 s.h.
or
061:164 Nursing Microbiology 4 s.h.

145:125 Contemporary Nutrition (if not used to fulfill foundation requirement) 3 s.h.
or
027:143 Physiology of Nutrition (if not used to fulfill foundation requirement) 3 s.h.

029:011 College Physics I 4 s.h.
or
029:081 Introductory Physics I 4 s.h.
Entrepreneurship Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the entrepreneurship emphasis must complete 15 s.h. chosen from these.

06A:001 Introduction to Financial Accounting 3 s.h.
06B:140 Business Writing 3 s.h.
06E:113 Health Economics 3 s.h.
06E:119 Policy Analysis 3 s.h.
06J:048 Introduction to Management 3 s.h.
06M:100 Introduction to Marketing Strategy 3 s.h.
06T:050 Foundations in Entrepreneurship 2 s.h.
06T:120 Entrepreneurship and Innovation 3 s.h.
06T:133 Entrepreneurial Finance 3 s.h.
06T:134 Entrepreneurial Marketing 3 s.h.
06T:145 Legal Aspects of Entrepreneurship 3 s.h.
06T:146 Strategic Management of Technology and Innovation 3 s.h.
06T:147 Social Entrepreneurship 3 s.h.
06T:148 E-Commerce Strategies for Entrepreneurs 3 s.h.
06T:150 Managing the Growth Business 3 s.h.
06T:190 Seminar in Entrepreneurship 2-3 s.h.
06T:192 Entrepreneurship: Business Consulting 3 s.h.
06T:194 Entrepreneurship: Advanced Business Planning 3 s.h.
08N:113 Writing for Business and Industry 3 s.h.
145:101 Creative Writing for Business 3 s.h.
145:198 Independent Study arr.
145:199 Interdepartmental Studies Practicum arr.

Aging Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the aging emphasis must complete 15 s.h. chosen from these.

08C:107/145:107 Creative Writing for the Health Professions 3 s.h.
145:198 Independent Study arr.
145:199 Interdepartmental Studies Practicum arr.
153:135/042:135 Global Aging: Cultural Comparisons 3 s.h.
153:146/096:146/169:146 Health Promotion for Older Adults 3 s.h.
153:150/031:050 Psychology of Aging 3 s.h.
153:153/042:153 Programs and Services for Aging Adults 3 s.h.
153:160 Biology of Aging 3 s.h.
153:168/169:168 Aging and Leisure 3 s.h.
153:186/042:186 Death/Dying: Issues Across the Life Span 3 s.h.
153:195/042:195 Introduction to Nursing Homes 3 s.h.

Sexuality Studies Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the sexuality studies emphasis must complete 15 s.h. chosen from these.

07C:130 Human Sexuality 3 s.h.
08C:107/145:107 Creative Writing for the Health Professions 3 s.h.
Global Health Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the global health emphasis must complete 15 s.h. chosen from these.

145:127 Nutrition in Health and Performance 3 s.h.
145:198 Independent Study (only 3 s.h. may count toward major) 3 s.h.
145:199 Interdepartmental Studies Practicum (only 3 s.h. may count toward major) 3 s.h.
152:120 Global Health and Human Rights 2-3 s.h.
152:121/113:121/149:121 Health of Indigenous Peoples 3 s.h.
152:125 Topics in Global Health 1-3 s.h.
152:131/044:131 Geography of Health 1-3 s.h.
152:135/028:135 Global Health and Global Food 3 s.h.
152:136/016:136 History of Medicine in Western Society 3 s.h.
152:137/16W:137 History of Public Health 3 s.h.
152:138/16W:138 History of International Health 3 s.h.
152:150 Research Design in Global Health (only one enrollment may count toward major) 2-3 s.h.
152:152 Global Health Conference (only one enrollment may count toward major) 1 s.h.
152:158/028:147 Promoting Health Globally 2 s.h.
152:160 Global Health Seminar (only one enrollment may count toward major) 3 s.h.
152:170/041:104 Health Care and Health Reforms in Russia 3 s.h.
152:182 Health Experience of Immigrants, Migrants, and Refugees 3 s.h.
152:184/113:184/172:131 Anthropology and International Health 3 s.h.
152:185/113:185/172:173 Medical Anthropology 3 s.h.
152:199 Special Projects in Global Health (only one enrollment may count toward major) arr.

Health Coach Emphasis

Students must earn 15 s.h. in their chosen emphasis area. Students who choose the health coach emphasis must complete 15 s.h. chosen from these.

07C:130 Human Sexuality 3 s.h.
07C:175 Motivational Interviewing 3 s.h.
07C:178 Microcounseling 1-3 s.h.
07C:185 Introduction to Substance Abuse 3 s.h.
07C:190 Group Processes for Related Professions 3 s.h.
07C:199 Counseling for Related Professions 3 s.h.
08C:107/145:107 Creative Writing for the Health Professions 3 s.h.
027:053 Human Anatomy (if not taken as foundation course) 3 s.h.
027:117 Human Growth and Motor Development 3 s.h.
027:130 Human Physiology (if not taken as foundation course) 3 s.h.
027:140 Exercise Physiology for Practitioners (if not taken as foundation course) 3 s.h.
028:036 Physical Activity Through the Life Span 3 s.h.
028:174 Understanding Stress and Coping 3 s.h.
031:063 Abnormal Psychology: Health Professions 3 s.h.
031:152 Health Psychology 3 s.h.
042:112/096:112 Human Sexuality, Diversity, and Society 1-3 s.h.
042:129 Substance Use and Abuse 3 s.h.
042:196 Family Violence 2-3 s.h.
060:110 Principles of Human Anatomy (if not taken as foundation course) 3 s.h.
145:127 Nutrition in Health and Performance 3 s.h.
145:130 Coaching for Health and Wellness 3 s.h.
145:145 Seminar: Health in a Changing Society 3 s.h.
145:198 Independent Study arr.
145:199 Interdepartmental Studies Practicum arr.
153:108 Basic Aspects of Aging 3 s.h.
153:146 Health Promotion for Older Adults 3 s.h.
154:110 Frameworks for the Study of Sexuality 3 s.h.
154:180 Seminar in Sexuality Studies 3 s.h.
154:185 Sexualities in Hispanic Cultures 3 s.h.
169:045 Health for Living (if not taken as foundation course) 3 s.h.
169:142 Health Promotion in the Workplace Setting 3 s.h.
169:148 Personal Training Management 3 s.h.
172:115 Community Preventive Programs and Services 3 s.h.

145:125 Contemporary Nutrition (if not taken as foundation course) 3 s.h.
or
027:143 Physiology of Nutrition (if not taken as foundation course) 3 s.h.

Recreation Management Track

The recreation management track requires 37 s.h. of work for the major. It provides a preapproved plan of study that combines a foundation in recreation management with a choice of two emphasis areas: the workplace practices and perspectives emphasis and the entrepreneurship emphasis. Students also have the option of proposing their own recreation-related emphasis area to the faculty advisory committee.

Recreation management track students must complete foundation course work (25 s.h.) and one emphasis area (12 s.h.). A minimum of 15 s.h. for the major must be completed at The University of Iowa. The Academic Advising Center advises recreation management track students; contact the center for more information about requirements.

Foundation Courses

All of these:

169:060 Leisure in Contemporary Society 3 s.h.
169:061 Recreation Leadership and Programming 3 s.h.
169:150 Recreation Administration 3 s.h.

Foundational management expertise--three of these:

145:199 Interdepartmental Studies Practicum (taken for 3 s.h.) arr.
169:152 Park and Recreation Facility Management 3 s.h.
169:153 Commercial Recreation Management 3 s.h.
169:156 Design of Recreation Facilities 3 s.h.
169:160 Introduction to Therapeutic Recreation 3 s.h.

Foundational leisure and sport--two of these:

028:036 Physical Activity Through the Life Span 3 s.h.
169:040/033:040 The Good Society 3 s.h.
169:045 Health for Living 3 s.h.
169:050/033:050 Making Choices: Interdisciplinary Perspectives 3 s.h.
169:070 Perspectives on Leisure and Play 3 s.h.
169:072 Leisure and the Liberal Arts 3 s.h.
169:080/033:080 Introduction to Place Studies 3 s.h.
169:168/153:168 Aging and Leisure 3 s.h.
Workplace Practices and Perspectives Emphasis

Students must earn 12 s.h. in their chosen emphasis area. Students who choose the workplace practices and perspectives emphasis must complete at least one course from each of three components (speaking and writing, foundations and practices, cultural diversity). The required 12 s.h. must include 6 s.h. earned in advanced courses (100 level or above). Advanced courses for each component are listed below.

Speaking and Writing Component

At least one chosen from these or from the advanced-level courses:

- 08C:001 Creative Writing Studio Workshop 3 s.h.
- 08N:020 Introduction to Creative Nonfiction 3 s.h.
- 08N:050/20E:050 Word Power: Building English Vocabulary 3 s.h.
- 036:012 Interpersonal Communication 3 s.h.
- 036:015 Persuasive Communication 3 s.h.
- 036:016 Business and Professional Communication 3 s.h.
- 036:017 Theory and Practice of Argument 4 s.h.
- 036:020/049:042 Clothing as Nonverbal Communication 3 s.h.

Advanced-level courses:

- 01J:115/033:115 What is Storytelling For? 3 s.h.
- 06B:140 Business Writing 3 s.h.
- 08A:104 Personal Writing for Non-English Majors 3 s.h.
- 08A:113 Writing for Business and Industry for Non-English Majors 3 s.h.
- 08C:023 Creative Writing 3 s.h.
- 08C:097 Fiction Writing 3 s.h.
- 08C:108 Creative Writing for New Media 3 s.h.
- 08N:080 Nonfiction Writing 3 s.h.
- 08N:104 Personal Writing 3 s.h.
- 08N:113 Writing for Business and Industry 3 s.h.
- 08N:120 Advanced Nonfiction Writing 3 s.h.
- 08N:133 Advanced Writing for Business 3 s.h.
- 036:061 Persuasion in Society 3 s.h.
- 036:158/010:141 Rhetoric and Past Public Controversy 3 s.h.
- 113:100/08L:100/103:100 Introduction to Linguistics 3 s.h.
- 145:101 Creative Writing for Business 3 s.h.

Foundations and Practices Component

At least one chosen from these or from the advanced-level courses:

- 019:090 Social Scientific Foundations of Communication 3 s.h.
- 019:091 Cultural and Historical Foundations of Communication 3 s.h.
- 019:095 Media and Consumers 3 s.h.
- 036:001 Core Concepts in Communication Studies 3 s.h.
- 113:014 Language, Culture, and Communication 3 s.h.

Advanced-level courses:

- 034:162/131:160 Work and Family Institutions 3 s.h.
- 036:070 Communication and Everyday Life 3 s.h.
- 036:074 Media and Society 3 s.h.
- 036:143/010:131 Classical Rhetoric and Greek Culture 3 s.h.

Cultural Diversity Component

At least one chosen from these or from the advanced-level courses:

- 01H:003 Art of Pre-Columbian America, Native America, and Oceania 3 s.h.
- 08G:005/149:005 Literatures of Native American Peoples 3 s.h.
- 08G:011 Literature and Sexualities 3 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>016:040</td>
<td>Perspectives: Diversity in American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:065/129:065</td>
<td>Introduction to African American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:080</td>
<td>Jazz Cultures in America and Abroad</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:016</td>
<td>Religion and Liberation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:060/149:060</td>
<td>Introduction to Native American Religions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:018/131:018</td>
<td>Gender and Society</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>034:066</td>
<td>Social Inequality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:051</td>
<td>Diversity in Action in American Society</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>129:060</td>
<td>Introduction to African American Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:061/045:030</td>
<td>Introduction to African American Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:010</td>
<td>Introduction to Gender, Women's, and Sexuality Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:055</td>
<td>Gender, Race, and Class in the U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>149:049/045:049</td>
<td>Introduction to American Indian and Native Studies</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Advanced-level courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07B:154</td>
<td>Education, Race, and Ethnicity</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>07U:133</td>
<td>The Culturally Different in Diverse Settings</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:118</td>
<td>Jewish American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:104/158:100</td>
<td>History of the American Deaf Community</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>16A:106</td>
<td>Disability in American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:112</td>
<td>Mexican American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:165/129:122</td>
<td>African Americans and the Media</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:141</td>
<td>History of Jazz</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:112/096:112</td>
<td>Human Sexuality, Diversity, and Society</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>103:150/113:173</td>
<td>Language and Gender</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:110/149:110/045:105</td>
<td>Native Peoples of North America</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Entrepreneurship Emphasis**

Students must earn 12 s.h. in their chosen emphasis area. Students who choose the entrepreneurship emphasis must complete 06T:120 (3 s.h.) and an additional 9 s.h. chosen from the courses listed below. The 9 s.h. may include one of the writing courses listed below (06B:140 Business Writing, 08N:113 Writing for Business and Industry, or 145:101 Creative Writing for Business).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06T:120</td>
<td>Entrepreneurship and Innovation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Complete 9 s.h. chosen from these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:001</td>
<td>Introduction to Financial Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:001</td>
<td>Principles of Microeconomics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>06J:048</td>
<td>Introduction to Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06M:100</td>
<td>Introduction to Marketing Strategy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:133</td>
<td>Entrepreneurial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:134</td>
<td>Entrepreneurial Marketing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:145</td>
<td>Legal Aspects of Entrepreneurship</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:146</td>
<td>Strategic Management of Technology and Innovation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:147</td>
<td>Social Entrepreneurship</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:148</td>
<td>E-Commerce Strategies for Entrepreneurs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:150</td>
<td>Managing the Growth Business</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:190</td>
<td>Seminar in Entrepreneurship</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>06T:192</td>
<td>Entrepreneurship: Business Consulting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:194</td>
<td>Entrepreneurship: Advanced Business Planning</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06B:140</td>
<td>Business Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or</td>
<td>08N:113 Writing for Business and Industry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major.)

Note: The Four-Year Graduation Plan is available only to ISP students in the individualized plan of study track.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one-half of the semester hours required for graduation

Before the seventh semester begins: an approved plan of study, at least six courses in the plan of study, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of at least nine courses in the plan of study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Interdepartmental studies students qualify for membership in the University of Iowa Honors Program by maintaining a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Graduating with honors usually includes the successful completion of the honors requirements in a particular department or program.

Students should initiate inquiries about graduating with honors by contacting the ISP coordinator. Students are encouraged to inquire early in their junior year to allow time for foundation course work. The director of the University of Iowa Honors Program can offer suggestions for contacting a supervising faculty member or committee from one or several appropriate departments. ISP students must submit an honors project approval form to the ISP coordinator and the honors program director.

Career Considerations

Since the major in interdepartmental studies affords opportunities outside the traditional degree pattern, students must create or choose study programs that meet their individual educational and career objectives. Those who plan to seek employment immediately after graduation should familiarize themselves with the educational background and qualifications required by employers and should include appropriate courses in their study programs.

Students preparing for advanced study should become familiar with the admissions requirements of graduate or professional schools that interest them. The earlier students decide to pursue graduate or professional study, the easier it is to complete necessary prerequisites.

Interdepartmental Studies Courses

145:101 Creative Writing for Business 3 s.h.
Opportunity to broaden understanding of literature, improve writing, and enhance ability to approach business problems in a creative and inspired manner; close reading and creative writing exercises used to develop appreciation of the written word, improve ability to express thoughts and ideas, and become more conscious of the quality of students' own written work. Prerequisite: rhetoric.

145:107 Creative Writing for the Health Professions 3 s.h.
Same as 08C:107.

145:108 Creative Writing for New Media 3 s.h.
Prepares creative writers for evolving marketplace of electronic text, media; experience writing in varied media such as the Internet, e-books, video games, mobile devices, emergent social narratives. Same as 08C:108.

145:109 Introduction to Arts Management 3 s.h.
Nonprofit performing arts management and administrative principles; practical applications, trends in the field; focus on arts organizations and their key administrative positions. Same as 049:109, 188:109.

145:110 Creative Writing for the Ecologically Aware: Stories in the Land 3 s.h.
How humans tether to their environment through stories; students write stories and through writing explore if there is a new tie to sustainable history. Same as 08C:110.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>145:111</td>
<td>New Ventures in the Arts</td>
<td>3 s.h.</td>
<td>Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates 06J:125 and 06T:120. Prerequisites: 06A:001 or 06T:050 or an approved college-level accounting course, and 06M:100; or graduate standing and consent of instructor. Corequisite: 06T:113. Same as 049:111, 06T:125, 188:111.</td>
</tr>
<tr>
<td>145:115</td>
<td>Creative Writing and Popular Culture</td>
<td>3 s.h.</td>
<td>Creative writing through the lens of popular culture; topics include television, film writing, adaptations, commercials, advertising, magazines, newspapers, comic books, song lyrics, billboards, and backs of cereal boxes. Same as 08C:115.</td>
</tr>
<tr>
<td>145:125</td>
<td>Contemporary Nutrition</td>
<td>3 s.h.</td>
<td>Introduction to nutrition; importance of understanding food choices and diet to fit individual needs.</td>
</tr>
<tr>
<td>145:127</td>
<td>Nutrition in Health and Performance</td>
<td>3 s.h.</td>
<td>Effects of exercise and nutrition on health- and sports-related fitness; for professionals in health and physical education.</td>
</tr>
<tr>
<td>145:130</td>
<td>Coaching for Health and Wellness</td>
<td>3 s.h.</td>
<td>Opportunities to expand knowledge and develop skills to help individuals change behavior and meet health-related goals; general health and wellness principles; principles and techniques for change; experience providing health-coaching services to clients.</td>
</tr>
<tr>
<td>145:145</td>
<td>Seminar: Health in a Changing Society</td>
<td>3 s.h.</td>
<td>Diverse health issues explored from individual and cultural perspectives; uncharted health issues addressed through contemporary health-related readings; racial and ethnic differences in personal health.</td>
</tr>
<tr>
<td>145:195</td>
<td>Arts Leadership Seminar</td>
<td>3 s.h.</td>
<td>Performing arts management and administrative principles, practical applications, trends in arts leadership and advocacy. Prerequisite: (for 049:195) 049:109 or 049:111 or graduate standing in an arts discipline. Same as 049:195, 06T:155, 188:195.</td>
</tr>
<tr>
<td>145:198</td>
<td>Independent Study</td>
<td>arr.</td>
<td>Individual study of issues or topics related to a specific interdepartmental focus chosen by the student.</td>
</tr>
<tr>
<td>145:199</td>
<td>Interdepartmental Studies Practicum</td>
<td>arr.</td>
<td>Opportunity to relate a student's chosen area of study to practical application. Prerequisite: interdepartmental studies student.</td>
</tr>
</tbody>
</table>
International Business

The Tippie College of Business and the College of Liberal Arts and Sciences offer the undergraduate Certificate in International Business. The program is open to all University of Iowa undergraduate students and individuals who hold a bachelor’s degree from The University of Iowa or another institution and are not enrolled in a graduate or professional program. See “Admission” at the end of this Catalog section.

Certificate in International Business

The Certificate in International Business requires 29 s.h. and satisfaction of the certificate’s foreign language requirement (required credit varies according to the language studied). The program is designed for undergraduate students who intend to pursue careers in international business as well as those interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates.

The certificate program includes study of international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area. The range of courses permits students to tailor areas of specialization suited to their individual interests and to complement majors in business and in liberal arts and sciences.

Students must maintain a g.p.a. of at least 2.00 on all certificate course work. Certificate courses may not be taken pass/nonpass. A course may not be used to satisfy more than one certificate requirement.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who want to use credit earned while studying abroad should consult an international business certificate advisor before leaving campus. University of Iowa Guided Independent Study (correspondence study) is accepted toward the certificate.

When students complete the certificate requirements and graduate, the Certificate in International Business is noted on their transcript. Contact the Tippie College of Business Undergraduate Program Office or the CLAS Academic Programs & Services office for more information.

The certificate requires course work in international business, international relations and institutions, foreign language, and area studies, as follows.

INTERNATIONAL BUSINESS

These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these:

- 06E:001 Principles of Microeconomics 4 s.h.
- 06E:002 Principles of Macroeconomics 4 s.h.

Three of these (total of 9 s.h.):

- 06E:125 Global Economics and Business 3 s.h.
- 06E:129 Economic Growth and Development 3 s.h.
- 06E:173 International Economics 3 s.h.
- 06F:130 International Finance 3 s.h.
- 06J:146 International Business Environment 3 s.h.
- 06M:151 International Marketing 3 s.h.
- 091:282 International Business Transactions 3 s.h.
- 091:287 International Trade Law: Basic Norms and Regulations 3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS

These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment--topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A:148</td>
<td>Race, Gender, U.S. International History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:152</td>
<td>United States in World Affairs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:138/152:138</td>
<td>History of International Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:156</td>
<td>Comparative Communication Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:041</td>
<td>Introduction to the Politics of Russia and Eurasia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:043</td>
<td>Introduction to Politics in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:060</td>
<td>Introduction to International Relations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:061</td>
<td>Introduction to American Foreign Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:130</td>
<td>Consequences of War</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:137</td>
<td>Introduction to Political Economy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:142</td>
<td>European Integration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:149</td>
<td>Problems in Comparative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:150</td>
<td>Comparative Administrative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:151</td>
<td>Political Leadership</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:155</td>
<td>International Courts: The Intersection of Law and Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:156</td>
<td>Ethnic and Religious Conflict in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:160</td>
<td>Women and Politics in Global Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:161</td>
<td>International Organization and World Order</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:162</td>
<td>American Foreign Policies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:163</td>
<td>Chinese Foreign Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:165</td>
<td>International Conflict</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:166</td>
<td>Global Political Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:167</td>
<td>Politics and the Multinational Enterprise</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:168</td>
<td>Politics of Terrorism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:169</td>
<td>Problems of International Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:170</td>
<td>The Politics of International Economics</td>
<td>3 s.h.</td>
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<tr>
<td>030:173</td>
<td>State Failure in the Developing World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:177</td>
<td>Globalization</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:178</td>
<td>Causes, Consequences, and Management of Civil War</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:179</td>
<td>Human Rights and Asian Values</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:159</td>
<td>Families in Comparative Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:042/042/042/187:042</td>
<td>Intercultural Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:010</td>
<td>The Contemporary Global System</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>044:011</td>
<td>Population Geography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:015</td>
<td>Introduction to Political Geography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:030</td>
<td>The Global Economy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:035</td>
<td>World Cities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:194</td>
<td>Geographic Perspectives on Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:193</td>
<td>Human Rights in the World Community</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:195</td>
<td>Introduction to Public International Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:010</td>
<td>Anthropology and Contemporary World Problems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:104</td>
<td>Cultural Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:106</td>
<td>The Anthropology of War and Peace</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:114</td>
<td>Environmentalism Cross-Culturally</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:116</td>
<td>Urban Anthropology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:134</td>
<td>Gender and Indian Diaspora</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:143</td>
<td>Environment and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:144</td>
<td>Culture and Consumption</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**FOREIGN LANGUAGE**

This component enables students to develop an intermediate level of competence in a second language. Through language study, students not only gain insight into the culture of another region of the world, they also develop a deeper understanding of their own language and culture.

Students must complete an approved foreign language sequence. For questions about languages not listed below or about study abroad course work, see an international business certificate advisor.
All of these:

195:101 Elementary Modern Standard Arabic I  
195:102 Elementary Modern Standard Arabic II  
195:111 Intermediate Modern Standard Arabic I  
195:112 Intermediate Modern Standard Arabic II  

Chinese

All of these:

039:008-039:009 First-Year Chinese: First Semester - First-Year Chinese: Second Semester  

French

One of these sequences:

009:001-009:002 Elementary French I-II  
009:010 First-Year French Review  

All of these:

009:011-009:012 Intermediate French I-II  
One course for which 009:012 is prerequisite (may include Iowa Regents Program credit)

German

One of these:

013:011-013:012 Elementary German I-II (both courses)  
013:014 First-Year German Review  

All of these:

013:021 Intermediate German I  
013:022 Intermediate German II  
One course for which 013:022 is prerequisite

Hindi

039:123 First-Year Hindi: First Semester  
039:124 First-Year Hindi: Second Semester  
039:126 Second-Year Hindi: First Semester  
039:127 Second-Year Hindi: Second Semester  

Italian

One of these:

018:001-018:002 Elementary Italian-II (both courses)  
018:103 Intensive Elementary Italian  

All of these:

018:011-018:012 Intermediate Italian-II  
One course for which 018:012 is prerequisite
Japanese

One of these sequences:


Both of these:


Portuguese

One of these:

- 038:100-038:101 Accelerated Elementary Portuguese - Accelerated Intermediate Portuguese (both courses) 0-10 s.h.
- 038:102 Portuguese for Spanish Speakers 3 s.h.

One course for which 038:101 or 038:102 is prerequisite

Russian

All of these:

- 041:001-041:002 First-Year Russian I-II 8 s.h.
- 041:003-041:004 Second-Year Russian I-II 8 s.h.

One course for which 041:004 is prerequisite

Spanish

035:001-035:002 Elementary Spanish I-II (both courses) 8 s.h.

One of these:

- 035:011-035:012 Intermediate Spanish I-II (both courses) 8 s.h.
- 035:013 Accelerated Intermediate Spanish 6 s.h.

One course for which 035:012 is prerequisite

Swahili

All of these:

- 103:125-103:126 Elementary Swahili I-II 8 s.h.
- 103:127-103:128 Intermediate Swahili I-II 8 s.h.

AREA STUDIES

These courses help students learn about the culture, contemporary history, art, literature, and politics of the geographic region in which their second language is spoken. They cover topics critical to understanding sociocultural influences on individuals with whom students share the world, and with whom they may conduct business.

Students complete 6 s.h. from one geographic area. The area should be appropriate to the language the student chooses for the language requirement.

Asia

Appropriate for these languages: Chinese, Hindi, or Japanese

- 01H:016/039:016 Asian Art and Culture 3 s.h.
- 01H:031/039:028 Introduction to the Art of China 3 s.h.
Introduction to the Art of Japan 3 s.h.
Chinese Art and Culture 3 s.h.
Chinese Painting I 3 s.h.
Japanese Painting 3 s.h.
Literature of the Indian Subcontinent 3 s.h.
Civilizations of Asia: China 3 s.h.
Civilizations of Asia: Japan 3 s.h.
Disease, Politics, and Health in South Asia 3 s.h.
Japan--Age of the Samurai 3 s.h.
Modern Japan 3 s.h.
Japan--U.S. Relations 3 s.h.
Vietnam War on Film 3-4 s.h.
China Since 1927 3 s.h.
Indian Philosophy 3 s.h.
Buddhist Philosophy 3 s.h.
Government and Politics of the Far East 3 s.h.
Government and Politics of China 3 s.h.
Chinese Foreign Policy 3 s.h.
Human Rights and Asian Values 3 s.h.
Living Religions of the East 3 s.h.
Introduction to Buddhism 3 s.h.
Asian Humanities: India 3 s.h.
Chinese Religions 3 s.h.
Introduction to Indian Religions 3 s.h.
Religion in Japanese Culture 3 s.h.
Religion in Modern India 3 s.h.
Asian Religious Classics 3 s.h.
Hindu Religion and Art 3 s.h.
Japanese Religion and Thought 3 s.h.
Turning East 3 s.h.
Indian Religious Texts 3 s.h.
Zen Buddhism 3 s.h.
Introduction to Chinese Culture 3 s.h.
Asian Humanities: China 3 s.h.
Asian Humanities: Japan 3 s.h.
Chinese Popular Culture 3 s.h.
The Languages of Asia in Cultural and Historical Perspective 3 s.h.
Understanding Korean Culture Wave 3 s.h.
Civilizations of Asia: South Asia 3 s.h.
Language/Politics of Culture in South Asia 3 s.h.
Indian Literature 3 s.h.
The Literature of Daoism 3 s.h.
Chinese Literature: Poetry 3 s.h.
Chinese Literature: Prose 3 s.h.
Topics in Asian Cinema 3 s.h.
East-West Literary Relations 3 s.h.
Modern Chinese Writers 3 s.h.
Meet West: A Cross-Cultural Course 3 s.h.
Asian Studies 3 s.h.
Language in Japanese Society 3 s.h.
Japanese Society and Culture 3 s.h.
Traditional Japanese Literature in Translation 3 s.h.
Modern Japanese Fiction in Translation 3 s.h.
Major Authors in Modern Japanese Literature 3 s.h.
Contemporary Japanese Culture 3 s.h.
Gendering India 4 s.h.
Popular Culture in South Asia 3 s.h.
Europe

Appropriate for these languages: French, German, Italian, Portuguese, or Spanish

01H:157/009:130/033:130 Paris and the Art of Urban Life 3 s.h.
008:110 Literature and Culture of 20th- and 21st-Century Britain 3 s.h.
009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
009:110 Introduction to French Literature: Twentieth Century 3 s.h.
009:114 French Civilization 3 s.h.
009:116 Cinema, Society, and Culture in Twentieth-Century France 3 s.h.
009:120 French-Speaking Cultures 3 s.h.
009:147/048:105 French Cinema 3 s.h.
009:148 Gender and Sexuality in French Cinema 3 s.h.
009:157 Twentieth-Century Europe in Literature and Film 3 s.h.
009:168/048:168 Post-Colonial Literature in France 3 s.h.
013:101 Introduction to German Literature 3 s.h.
013:105 German Cultural History 3 s.h.
013:108 The German Media 3 s.h.
013:115 Contemporary German Civilization 3 s.h.
013:117 Current Issues 3 s.h.
13E:075 Scandinavian Crime Fiction 3 s.h.
13E:119 German Film 3 s.h.
13E:120 Germany in the World 3 s.h.
13E:151 New Literature and Film from Switzerland: Beyond Heidi and Lucerne arr.
013:140 Literature in Film 3 s.h.
013:142 Twentieth-Century Children's Literature 3 s.h.
013:145 Twentieth-Century Literary History in Scenes/Stories 3 s.h.
16E:130 Modern European Imperialism 3 s.h.
16E:135 Twentieth-Century Europe: The Nazi Era 3 s.h.
16E:136 Twentieth-Century Europe: The Cold War and After 3 s.h.
16E:144 Modern France 1870-Present 3 s.h.
16E:146 France from 1815-Present 3 s.h.
16E:152 Modern Britain: The Twentieth Century 3 s.h.
16E:156 Germany Since 1914: Weimar, Hitler, and After 3 s.h.
16W:155 Europe and the U.S. in the Twentieth Century 3 s.h.
018:105 Modern Italian Fiction 3 s.h.
018:106 Modern Italian Poetry and Drama 3 s.h.
018:132 Images of Modern Italy 3 s.h.
030:140 Government and Politics of Europe 3 s.h.
030:142 European Integration 3 s.h.
030:147 Comparative Parties and Elections 3 s.h.
030:172 France in the 21st Century 3 s.h.
035:110 Readings in Spanish Literature and Culture 3 s.h.
035:150 Spanish Civilization 3 s.h.
035:161 Modern Spanish Literature 3 s.h.
038:107 Introduction to Portuguese Literature 3 s.h.
048:021 Introduction to European Film 3 s.h.
048:104 Topics in European Film 3 s.h.
048:157 Twentieth-Century Europe in Literature and Film 3 s.h.
048:167 Gender and Sexuality in French Cinema 3 s.h.

Latin America

Appropriate for these languages: Portuguese or Spanish

008:082 Latina/o Studies 3 s.h.
008:114 Caribbean Literature and Culture 3 s.h.
008:133 Inter-American Studies 3 s.h.
16A:112 Mexican American History 3 s.h.
16A:113 Latina/o Immigration 3 s.h.
16W:106 Society and Revolution in Cuba 3 s.h.
16W:107 History of Mexico 3 s.h.
16W:110 Topics in Latin American History 3 s.h.
16W:112 Introduction to Modern Latin America 3 s.h.
16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.
16W:115 Latin American Revolution 3 s.h.
030:144 Latin American Politics 3 s.h.
030:145 Latin American Political Parties 3 s.h.
035:020 Contemporary Spanish American Narrative 3 s.h.
035:111 Readings in Spanish American Literature and Culture 3 s.h.
035:130 Spanish American Civilization 3 s.h.
035:131 Contemporary Spanish American Fiction 3 s.h.
035:132 Spanish American Poetry 3 s.h.
035:134 Spanish American Short Story 3 s.h.
035:135 Latinos in the United States 3 s.h.
035:136 Culture and Language in the Andes 3 s.h.
035:142 Introduction to Caribbean Studies 3 s.h.
035:144/131:162 Latin American Women Writers 3 s.h.
035:145/048:145 Latin America Cinema 3 s.h.
035:171 Pan-Caribbean Literary Currents 3 s.h.
035:175 Cultural Identity in Caribbean Literature 3 s.h.
035:191 Topics in Latin American Cinema 3 s.h.
038:020 Contemporary Brazilian Narrative 3 s.h.
038:077 Brazil: The Erotic/Exotic Lure 3 s.h.
038:106 Brazilian Literature After 1900 3 s.h.
038:112 Topics in Luso-Brazilian Literature 3 s.h.
038:115 Writing Brazil in the U.S. 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
113:166 The Aztecs, Their Predecessors, and Their Contemporaries 3 s.h.
130:070 Introduction to Latin American Studies 3 s.h.

Middle East/Africa

Appropriate for these languages: Swahili, or proficiency in another contemporary Middle Eastern or African language

01H:002 Arts of Africa 3 s.h.
01H:021 Introduction to the Art of West Africa 3 s.h.
01H:022 Introduction to the Art of Central Africa 3 s.h.
01H:107 Art of West Africa 3 s.h.
008:119/129:119 African Literature 3 s.h.
008:157 Topics in African Cinema 3 s.h.
08G:014/129:008 Literatures of the African Peoples 3 s.h.
009:120 French-Speaking Cultures 3 s.h.
009:146 Francophone Cinema 3 s.h.
009:163 Francophone Literature of the African Diaspora 3 s.h.
16W:121/129:164 African History Since 1880 3 s.h.
16W:122 History and Environment in Africa 3 s.h.
16W:125 Women in African History 3 s.h.
16W:126 Islam in Sub-Saharan Africa 3 s.h.
16W:152 History of the Modern Middle East 3 s.h.
16W:153 Topics in the Modern Middle East 3 s.h.
030:043 Introduction to Politics in the Muslim World 3 s.h.
030:156 Ethnic and Religious Conflict in the Muslim World 3 s.h.
030:176 Governance in the Middle East 3 s.h.
Undergraduate students pursuing a degree from The University of Iowa are eligible to work toward the Certificate in International Business. Students who already have earned a baccalaureate degree from The University of Iowa may return to complete or earn a certificate in international business if they are not enrolled in a graduate or professional program. Holders of baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program may enroll at The University of Iowa to complete a Certificate in International Business. Contact the Office of Admissions.

Interested students must declare their intention to pursue the certificate with an international business certificate advisor and must submit a plan of study. Students admitted to the Tippie College of Business or advised at the college's Undergraduate Program Office should consult the advising staff in that office. Students in the College of Liberal Arts and Sciences should consult an international business certificate advisor in the Academic Advising Center.
International Studies

Director: Kristine Fitch
Undergraduate degree: B.A. in International Studies
Undergraduate nondegree program: Minor in International Studies
Graduate degree: M.A. in international studies
Web site: http://international.uiowa.edu/

International studies is not simply the study of diplomacy and relations among states. The International Studies Program requires all students to integrate theoretical knowledge about broad global processes and the methods used to study them, with in-depth examination of a particular region of the world or a major theme in international studies. It affords students the opportunity to integrate the study of history, politics, economics, expressive arts, culture, beliefs, and social systems.

Undergraduate Programs

The program offers a Bachelor of Arts and a minor in international studies. The major is an interdisciplinary program of study offered with either a geographic or a thematic emphasis. It prepares students for careers in business, government, international development agencies, nongovernmental organizations, philanthropic agencies, and the arts. It also is excellent preparation for graduate training in the social sciences, the arts, law, business, journalism, international affairs, and area studies.

The curriculum is designed to help students learn to appreciate world cultures, focus on themes of global significance, and master varied disciplinary approaches used to study international issues. For students interested in pursuing a double major, the international studies major complements a wide range of academic degree programs.

Bachelor of Arts

The Bachelor of Arts in international studies requires a minimum of 120 s.h., including 39 s.h. of work for the major. The program is flexible, drawing on courses across the humanities and social sciences. All students majoring in international studies are mentored by a faculty member who specializes in their geographic or thematic emphasis area. Students also work closely with an academic advisor to plan their program of study.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Transfer course work equivalent to University of Iowa course work can be accepted toward the major, but at least 15 s.h. of course work for the major must be earned at The University of Iowa.

Students majoring in international studies must earn at least 12 s.h. of the required 39 s.h. in upper-level course work. An orientation course (1 s.h.) prepares students to fully engage in their interdisciplinary program of study, and a foundation course (3 s.h.) and two core courses (6 s.h.) introduce them to the major issues in international studies and the varied methods used to examine them. Foreign language proficiency is vital for participating in diverse societies and cultures, so foreign language study beyond the General Education Program requirement is required.

Students select a geographic or thematic emphasis area or develop one in consultation with their faculty advisor. Each student must complete a senior project (3 s.h.) related to his or her emphasis area, preparing for the project during the previous semester with a required research course (2 s.h.). International studies electives (6 s.h.) outside the student's emphasis area provide comparative perspectives.

Students who earn a Certificate in Latin American Studies, Global Health Studies, or International Business, or a minor in global health studies or Latin American studies may not choose the corresponding emphasis area for the international studies major.

The program encourages study abroad. See "Study Abroad Opportunity" below, for details.

DISTRIBUTION REQUIREMENTS

International studies students must undertake course work in at least four different departments and/or programs. They must complete at least 12 s.h. of upper-level course work: 6 s.h. in the emphasis area, 3 s.h. in the elective area, and 3 s.h. in the emphasis, elective, or foreign language area.

ORIENTATION COURSE

Within the first year after declaring a major in international studies, students must complete 187:010 Orientation to International Studies. The course introduces them to the interdisciplinary major and familiarizes them with international opportunities in their course of study.
FOUNDATION COURSE

Each student chooses at least 3 s.h. from the following course list, ordinarily early in the major. Foundation courses provide an overview of global issues and introduce a disciplinary approach to global topics, laying the groundwork for continuing study.

- 187:005 Making of the Modern Global System 3 s.h.
- 187:006 Developed and Developing Places 3 s.h.
- 187:007 The European Union 3 s.h.
- 187:020 Introduction to International Studies 3 s.h.
- 06E:125 Global Economics and Business 3 s.h.
- 030:060 Introduction to International Relations 3 s.h.
- 036:086 Global Media Studies 3 s.h.
- 044:010 The Contemporary Global System 4 s.h.
- 044:019 Contemporary Environmental Issues 3 s.h.
- 113:010 Anthropology and Contemporary World Problems 3 s.h.

CORE COURSES

Core courses serve as gateways to further focused study in the emphasis areas. Students choose 6 s.h. of core courses from the following list. In order to preserve the interdisciplinarity of the program, students must choose at least one course from a department or program different from the one that offered their foundation course. Students may not use the same course to fulfill both a foundation course requirement and a core course requirement.

- 187:005 Making of the Modern Global System 3 s.h.
- 187:006 Developed and Developing Places 3 s.h.
- 187:007 The European Union 3 s.h.
- 187:050 Introduction: East European and Central Asian Cultures 3 s.h.
- 187:060 The Middle East Today: A Social Inquiry 3 s.h.
- 187:080 Introduction to Human Rights 3 s.h.
- 187:142 Introduction to Caribbean Studies 3 s.h.
- 06E:125 Global Economics and Business 3 s.h.
- 06J:146 International Business Environment 3 s.h.
- 030:060 Introduction to International Relations 3 s.h.
- 030:061 Introduction to American Foreign Policy 3 s.h.
- 036:042/042:042/187:042 Intercultural Communication 3 s.h.
- 036:086 Global Media Studies 3 s.h.
- 044:010 The Contemporary Global System 4 s.h.
- 044:019 Contemporary Environmental Issues 3 s.h.
- 044:030 The Global Economy 3 s.h.
- 048:022 World Film 3 s.h.
- 048:040 Major Texts in World Literature I 3 s.h.
- 048:041 Major Texts of World Literature II 3 s.h.
- 103:055 Languages of the World 3 s.h.
- 113:010 Anthropology and Contemporary World Problems 3 s.h.
- 130:070 Introduction to Latin American Studies 3 s.h.
- 195:050 Topics in Middle East/Muslim World Studies I 3 s.h.

GEOGRAPHIC OR THEMATIC EMPHASIS AREA

Each student chooses one of the geographic emphasis or thematic emphasis areas listed below. The emphasis area is noted on the student's transcript. Students must complete at least four courses in the emphasis area, for a total of 12 s.h.; at least 6 of the 12 s.h. must be earned in upper-level course work (usually numbered 100 or above).

Courses approved in each emphasis area are listed below. Students may petition the international studies program by the specified deadline date each semester to include a course not on a list of approved emphasis area courses.

Geographic emphasis areas include Caribbean studies, African studies; East Asian studies; European studies; Latin American studies; Russian, East European, and Eurasian studies; Middle East and Muslim world studies; and South Asian studies.

Thematic emphasis areas include development; global artistic tradition and change; global resources and the
environment; global health; human rights; international business; international communication and information; international politics and international relations; postcolonial and diasporic studies; and war, peace, and security.

Other thematic emphasis areas for which sufficient courses exist may be developed by a student with the approval of an international studies faculty advisor.

African Studies Emphasis

Choose 12 s.h. from these:

- 01H:002 Arts of Africa 3 s.h.
- 01H:021 Introduction to the Art of West Africa 3 s.h.
- 01H:022 Introduction to the Art of Central Africa 3 s.h.
- 01H:107 Art of West Africa 3 s.h.
- 008:119/129:119 African Literature 3 s.h.
- 008:157 Topics in African Cinema 3 s.h.
- 009:120 French-Speaking Cultures 3 s.h.
- 009:163 Francophone Literature of the African Diaspora 3 s.h.
- 16E:130 Modern European Imperialism 3 s.h.
- 16W:061 Africa and the Atlantic Slave Trade 3 s.h.
- 16W:121/129:164 African History Since 1880 3 s.h.
- 16W:122 History and Environment in Africa 3 s.h.
- 16W:125 Women in African History 3 s.h.
- 16W:126 Islam in Sub-Saharan Africa 3 s.h.
- 004:161 African Development 3 s.h.
- 129:163/16W:120 Pre-Colonial African History 3 s.h.

Caribbean Studies Emphasis

Choose 12 s.h. from these:

- 008:114 Caribbean Literature and Culture 3 s.h.
- 16W:106 Society and Revolution in Cuba 3 s.h.
- 16W:112 Introduction to Modern Latin America 3 s.h.
- 16W:115 Latin American Revolution 3 s.h.
- 16W:121/129:164 African History Since 1880 3 s.h.
- 025:104 Music of Latin America and the Caribbean 3 s.h.
- 025:163 Steel Band 1 s.h.
- 035:143/048:196 Cuban American Literature and Culture 3 s.h.
- 035:171/048:162 Pan-Caribbean Literary Currents 3 s.h.
- 035:175 Cultural Identity in Caribbean Literature 3 s.h.
- 187:142/035:142 Introduction to Caribbean Studies 3 s.h.

East Asian Studies Emphasis

Choose 12 s.h. from these:

- 01H:016/039:016 Asian Art and Culture 3 s.h.
- 01H:119/039:159 Chinese Art and Culture 3 s.h.
- 01H:120/039:120 Chinese Painting I 3 s.h.
- 01H:123/39J:123 Japanese Painting 3 s.h.
- 01H:124/039:131 Themes in Asian Art History 3 s.h.
- 016:005/039:055 Civilizations of Asia: China 3 s.h.
- 016:006/039:056 Civilizations of Asia: Japan 3-4 s.h.
- 16W:175/39J:175 Japan—U.S. Relations 3 s.h.
- 16W:178/039:175 Topics in Asian History 3 s.h.
- 16W:183 Vietnam War on Film 3-4 s.h.
- 16W:198/039:196 China Since 1927 3 s.h.
- 026:145/032:175 Buddhist Philosophy 3 s.h.
- 030:143/039:178 Government and Politics of the Far East 3 s.h.
030:148 Government and Politics of China 3 s.h.
030:163 Chinese Foreign Policy 3 s.h.
030:179 Human Rights and Asian Values 3 s.h.
032:004/039:064 Living Religions of the East 3 s.h.
032:006/039:006 Introduction to Buddhism 3 s.h.
032:009/039:019 Asian Humanities: China 3 s.h.
032:010/039:007 Chinese Religions 3 s.h.
032:017/39J:017 Religion in Japanese Culture 3 s.h.
032:075/039:075 Asian Religious Classics 3 s.h.
032:163/039:162 Turning East 3 s.h.
032:170 Topics in Asian Religions 3 s.h.
032:178/039:188 East Meets West: The Western Reception of Eastern Religion 3 s.h.
039:015 Introduction to Chinese Culture 3 s.h.
039:020 Asian Humanities: Japan 3 s.h.
039:141/048:141 Chinese Literature: Poetry 3 s.h.
039:142 Chinese Literature: Prose 3 s.h.
039:144/103:144 Introduction to Chinese Linguistics 3 s.h.
039:145 Topics in Asian Cinema 3 s.h.
039:171 Readings in Chinese Literature 3 s.h.
039:173 Transnational Chinese Cinemas 3 s.h.
039:180 Modern Chinese Writers 3 s.h.
039:192/048:192 East Meets West: A Cross-Cultural Course 3 s.h.
039:198 Topics in Asian Studies arr.
39J:103 Language in Japanese Society 3 s.h.
39J:129 Japan: Culture and Communication 3 s.h.
39J:130 Workshop in Japanese Literary Translation 3 s.h.
39J:141/048:143 Traditional Japanese Literature in Translation 3 s.h.
39J:142/048:142 Modern Japanese Fiction in Translation 3 s.h.
39J:143 Topics in Japanese Literature in Translation 3 s.h.
39J:144 Major Authors in Modern Japanese Literature 3 s.h.
39J:145/048:144 The Tale of Genji 3 s.h.
39J:146/048:147 Warriors Dreams 3 s.h.
091:651 Law in Asia arr.
113:118 North Korea and Totalitarianism 3 s.h.

European Studies Emphasis

Choose 12 s.h. from these:

01H:005 Western Art and Culture Before 1400 3 s.h.
01H:006 Western Art and Culture After 1400 3 s.h.
01H:026/20E:026 Introduction to Ancient Art 3 s.h.
01H:040 Introduction to Medieval Art 3 s.h.
01H:047 Introduction to Renaissance Art 3 s.h.
01H:053 Introduction to Baroque Visual Culture 3 s.h.
01H:062 Introduction to Nineteenth-Century Art 3 s.h.
01H:073 Introduction to Modern/Contemporary Art 3 s.h.
01H:084 Introduction to European Architecture 3 s.h.
01H:127/20E:124 Classical Greek Art 3 s.h.
01H:132/20E:128 Art of Early Rome: Patrons and Politics 3 s.h.
01H:134/20E:129 Art and Culture in Ancient Pompeii 3 s.h.
01H:142 Leonardo, Raphael, and Their Contemporaries 3 s.h.
01H:150 Seventeenth-Century Dutch and Flemish Painting 3 s.h.
01H:155 The Romantic Revolution 3 s.h.
01H:158 Realism, Impressionism, Post-Impressionism 3 s.h.
01H:171 Modern Art 3 s.h.
01H:172 Late Modern Art 3 s.h.
01H:183 History of Prints 3 s.h.
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038:107 Introduction to Portuguese Literature
048:021 Introduction to European Film
048:104 Topics in European Film
048:163 Studies in 20th-Century European Literature
049:194 Dramaturgy
102:128 Design Europe: Spatial Planning and Identity
108:182/16E:120 The Book in the Middle Ages
113:150 Tribes and Chiefdoms of Ancient Europe
131:181/16E:125 Society and Gender in Europe 1200-1789
187:007 The European Union

Latin American Studies Emphasis

Choose 12 s.h. from these:

01H:105 Art of Pre-Columbian America
008:133 Inter-American Studies
16A:112 Mexican American History
16W:107 History of Mexico
16W:110 Topics in Latin American History
16W:111 Colonial Latin America
16W:112 Introduction to Modern Latin America
16W:114 Latin America and the U.S.: The Historical Perspective
16W:115 Latin American Revolution
025:104 Music of Latin America and the Caribbean
030:144 Latin American Politics
030:145 Latin American Political Parties
035:020 Contemporary Spanish American Narrative
035:070/038:070/130:070/187:070 Introduction to Latin American Studies
035:111 Readings in Spanish American Literature and Culture
035:113 Screening Latin America
035:130 Spanish American Civilization
035:131 Contemporary Spanish American Fiction
035:132 Spanish American Poetry
035:134 Spanish American Short Story
035:136 Culture and Language in the Andes
035:140 Spanish American Literature of Fantasy
035:144/113:162 Latin American Women Writers
035:145 Latin America Cinema
035:173 Colonial Spanish American Literature
035:178 Topics in Spanish American Literature
035:191/048:178 Topics in Latin American Cinema
036:152 Latin American Media
038:020 Contemporary Brazilian Narrative
038:105 Brazilian Literature Before 1900
038:106 Brazilian Literature After 1900
038:112 Topics in Luso-Brazilian Literature
038:115 Writing Brazil in the U.S.
038:120 Topics in Luso-Brazilian Culture
113:117 The Maya: Archaeology and Ethnohistory
113:131 Latin American Economy and Society
113:163 Archaeology of Mesoamerica
113:166 The Aztecs, Their Predecessors, and Their Contemporaries
137:157 Brazilian Carnival
Middle East and Muslim World Studies Emphasis

Choose 12 s.h. from these:

- 008:132 Literature of the Indian Subcontinent
- 16W:126 Islam in Sub-Saharan Africa
- 16W:152 History of the Modern Middle East
- 16W:153 Topics in the Modern Middle East
- 20E:071 Middle East and Mediterranean, Alexander to Suleiman
- 030:043 Introduction to Politics in the Muslim World
- 030:156 Ethnic and Religious Conflict in the Muslim World
- 032:030 Introduction to Islam
- 032:052 Women in Islam and the Middle East
- 032:063/129:063 African American Islam/International Perspective
- 032:155 Human Rights and Islam
- 032:157 Religion and Politics: The Islamic World
- 032:159/091:223 Comparative Islamic Law
- 032:167 Islamic Ethics and Political Thought
- 032:179/035:179 Islamic Cultural Presence in Spain
- 041:096 Islamic Women in Russia
- 041:164 The Middle East
- 091:307 Law in the Muslim World
- 187:060 The Middle East Today: A Social Inquiry
- 187:160 Modern Arab Narrative Identities
- 187:165 Cities of the Global South
- 195:050 Topics in Middle East/Muslim World Studies I
- 195:125 Topics in Middle East/Muslim World Studies II
- 195:126 Study Abroad: Culture and Society

Russian, East European, and Eurasian Studies Emphasis

Choose 12 s.h. from these:

- 16E:178 Soviet Union 1917-1945
- 030:041 Introduction to the Politics of Russia and Eurasia
- 030:141 Russian/Post-Soviet Politics
- 030:146 Russian Foreign Policy
- 030:159 Politics Under Authoritarian Rule
- 041:096 Islamic Women in Russia
- 041:098 Introduction to Russian Culture
- 041:099 Russia Today
- 041:100 Russian Literature in Film
- 041:103 Russian Literature since 1917
- 041:104/152:170 Health Care and Health Reforms in Russia
- 041:126/048:126 Cult Films of the Last Soviet Generation
- 041:148 Journey Through Time and Culture
- 041:155/008:155 Tolstoy and Dostoevsky
- 041:156/008:156/048:156 Invitation to Nabokov
- 041:160 Women in Russian Society
- 041:168/048:154 Twentieth-Century Czech Authors
- 041:190 Readings in Russian Literature
- 048:050/187:050 Introduction: East European and Central Asian Cultures
- 048:184/187:185 Topics in REEES

South Asian Studies Emphasis

Choose 12 s.h. from these:

- 008:127/039:145/048:106 Topics in Asian Cinema
- 008:132 Literature of the Indian Subcontinent
Civilizations of Asia: South Asia 3-4 s.h.
16W:140 Disease, Politics, and Health in South Asia 3 s.h.
026:144/032:174 Indian Philosophy 3 s.h.
026:150 Topics in Indian Philosophy 3 s.h.
026:151 Topics in Ancient Philosophy 3 s.h.
030:179 Human Rights and Asian Values 3 s.h.
032:004/039:064 Living Religions of the East 3 s.h.
032:006/039:006 Introduction to Buddhism 3 s.h.
032:008/039:018 Asian Humanities: India 3 s.h.
032:057 Religion in Modern India 3 s.h.
032:170/039:168 Topics in Asian Religions 3 s.h.
032:171/039:163 Indian Religious Texts 3 s.h.
032:177/039:136 Indian Literature 3 s.h.
032:178/039:188 East Meets West: The Western Reception of Eastern Religion 3 s.h.
039:119/113:120 Popular Culture in South Asia 3 s.h.
039:122/113:129 Language/Politics of Culture in South Asia 3 s.h.
113:107 Gendering India 4 s.h.
113:118 North Korea and Totalitarianism 3 s.h.
113:127/131:127 South Asian Sexual Cultures 3 s.h.

Choose 12 s.h. from these:

06E:129 Economic Growth and Development 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:173 International Economics 3 s.h.
07B:104 Education in the Third World 2-3 s.h.
030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:170 The Politics of International Economics 3 s.h.
030:177 Globalization 3 s.h.
044:030 The Global Economy 3 s.h.
044:035 World Cities 3 s.h.
044:104 Environment and Development 3 s.h.
044:161 African Development 3 s.h.
044:194 Geographic Perspectives on Development 3 s.h.
046:126 International Perspectives: Xicotepec 3 s.h.
053:141 Design for the Developing World 3 s.h.
102:128 Design Europe: Spatial Planning and Identity 3 s.h.
102:140 Planning for Sustainability 3 s.h.
102:297 Community Development Finance 3 s.h.
113:010 Anthropology and Contemporary World Problems 3 s.h.
113:113 Human Impacts on the Environment 3 s.h.
113:131 Latin American Economy and Society 3 s.h.
187:180 Human Rights Advocacy 3 s.h.

Choose 12 s.h. from these:

01H:001 Art and Visual Culture 3 s.h.
01H:002 Arts of Africa 3 s.h.
01H:004 Masterpieces: Art and Cultural Paradigms 3 s.h.
01H:016/039:016 Asian Art and Culture 3 s.h.
01H:084 Introduction to European Architecture 3 s.h.
01H:107 Art of West Africa 3 s.h.
01H:119 Chinese Art and Culture 3 s.h.
01H:120/039:120 Chinese Painting I 3 s.h.
01H:123 Japanese Painting 3 s.h.

Global Artistic Tradition and Change Emphasis
<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>01H:132</td>
<td>Art of Early Rome: Patrons and Politics</td>
<td>3 s.h.</td>
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<tr>
<td>008:064</td>
<td>Victorian Literature</td>
<td>3 s.h.</td>
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<td>008:084</td>
<td>Topics in Culture and Identity</td>
<td>3 s.h.</td>
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<tr>
<td>008:090</td>
<td>Topics in Modern British Literature Before 1900</td>
<td>3 s.h.</td>
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<tr>
<td>008:114</td>
<td>Caribbean Literature and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:119/119</td>
<td>African Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:125</td>
<td>Classical Mythology</td>
<td>3 s.h.</td>
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<tr>
<td>008:150</td>
<td>Topics in Medieval and Renaissance Literature</td>
<td>3 s.h.</td>
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<tr>
<td>008:157</td>
<td>Topics in African Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:191/191</td>
<td>International Literature Today</td>
<td>1, 3 s.h.</td>
</tr>
<tr>
<td>008:193</td>
<td>Transcultural Modernism</td>
<td>3 s.h.</td>
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<tr>
<td>009:118</td>
<td>Topics in French Studies I</td>
<td>3 s.h.</td>
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<tr>
<td>009:130</td>
<td>Paris and the Art of Urban Life</td>
<td>3 s.h.</td>
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<td>009:146</td>
<td>Francophone Cinema</td>
<td>3-4 s.h.</td>
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<td>009:147/048</td>
<td>French Cinema</td>
<td>3-4 s.h.</td>
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<tr>
<td>009:157</td>
<td>Topics in African Cinema</td>
<td>3 s.h.</td>
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<tr>
<td>013:101</td>
<td>Introduction to German Literature</td>
<td>3 s.h.</td>
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<tr>
<td>013:151</td>
<td>New Literature and Film from Switzerland</td>
<td>3 s.h.</td>
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<tr>
<td>16E:127</td>
<td>European History in Text and Film</td>
<td>4 s.h.</td>
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<td>018:106</td>
<td>Modern Italian Poetry and Drama</td>
<td>3 s.h.</td>
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<tr>
<td>20E:014</td>
<td>Hero, God, Mortal: Literature of Greece</td>
<td>3 s.h.</td>
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<tr>
<td>20E:075</td>
<td>Ancient Sports and Leisure</td>
<td>3 s.h.</td>
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<tr>
<td>20G:120</td>
<td>Archaic and Classical Periods I</td>
<td>3 s.h.</td>
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<tr>
<td>20L:120</td>
<td>Latin Literature of the Republic I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20L:121</td>
<td>Latin Literature of the Republic II</td>
<td>3 s.h.</td>
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<tr>
<td>20L:122</td>
<td>Latin Literature of the Empire I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:103</td>
<td>World Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:104</td>
<td>Music of Latin America and the Caribbean</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:178</td>
<td>Music, Culture, and Identity</td>
<td>3 s.h.</td>
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<tr>
<td>035:111</td>
<td>Readings in Spanish American Literature and Culture</td>
<td>3 s.h.</td>
</tr>
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<td>035:132</td>
<td>Spanish American Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:161</td>
<td>Modern Spanish Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:178</td>
<td>Topics in Spanish American Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:181</td>
<td>Topics in Spanish Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:191/048</td>
<td>Topics in Latin American Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:192</td>
<td>Topics in Film Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>038:115</td>
<td>Writing Brazil in the U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>039:136/032</td>
<td>Indian Literature</td>
<td>3 s.h.</td>
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<tr>
<td>039:145/048</td>
<td>Topics in Asian Cinema</td>
<td>3 s.h.</td>
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<tr>
<td>039:173/048</td>
<td>Transnational Chinese Cinemas</td>
<td>3 s.h.</td>
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<tr>
<td>039:198</td>
<td>Topics in Asian Studies</td>
<td>arr.</td>
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<tr>
<td>39J:141/048</td>
<td>Traditional Japanese Literature in Translation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39J:143</td>
<td>Topics in Japanese Literature in Translation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39J:144</td>
<td>Major Authors in Modern Japanese Literature</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>041:100</td>
<td>Russian Literature in Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>041:126</td>
<td>Cult Films of the Last Soviet Generation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>041:156/008</td>
<td>Invitation to Nabokov</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:012</td>
<td>Film and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:021</td>
<td>Introduction to European Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:022</td>
<td>World Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:040/008</td>
<td>Major Texts in World Literature I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:041/008</td>
<td>Major Texts of World Literature II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:104</td>
<td>Topics in European Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:118</td>
<td>Topics in World Cinemas</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:145/035</td>
<td>Latin America Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:152</td>
<td>America in Other Words</td>
<td>1-2, 3 s.h.</td>
</tr>
<tr>
<td>048:185</td>
<td>Global Women's Cinema</td>
<td>3 s.h.</td>
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<tr>
<td>049:002</td>
<td>Theatre and Society: Ancients and Moderns</td>
<td>3 s.h.</td>
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</table>
049:003 Theatre and Society: Romantics and Rebels  3 s.h.
049:112 History of Theatre and Drama I  3 s.h.
049:113 History of Theatre and Drama II  3 s.h.
129:008/08G:014 Literatures of the African Peoples  3 s.h.
131:052/008:052 Literature, Culture, and Women  2-3 s.h.
131:162/035:144 Latin American Women Writers  3 s.h.
137:157 Brazilian Carnival  3 s.h.

Global Resources and the Environment Emphasis

Choose 12 s.h. from these:

06E:133 Environmental and Natural Resource Economics  3 s.h.
032:076/149:076 American Indian Environmentalism  3 s.h.
044:003 Introduction to Earth Systems Science  4 s.h.
044:010 The Contemporary Global System  4 s.h.
044:011 Population Geography  3 s.h.
044:019 Contemporary Environmental Issues  3 s.h.
044:104 Environment and Development  3 s.h.
044:177 Environmental Justice  3 s.h.
044:178 Consequences of Global Environmental Change  3 s.h.
053:141 Design for the Developing World  3 s.h.
102:140 Planning for Sustainability  3 s.h.
113:113 Human Impacts on the Environment  3 s.h.
113:114 Environmentalism Cross-Culturally  3 s.h.
113:143 Environment and Culture  3 s.h.
152:135 Global Health and Global Food  3 s.h.
187:005 Making of the Modern Global System  3 s.h.

Global Health Studies Emphasis

Choose 12 s.h. from these:

06E:113 Health Economics  3 s.h.
16W:138/152:138 History of International Health  3 s.h.
16W:140 Disease, Politics, and Health in South Asia  3 s.h.
028:147/152:158 Promoting Health Globally  2 s.h.
044:131/152:131 Geography of Health  1-3 s.h.
053:141 Design for the Developing World  3 s.h.
096:175/152:175 Issues in International Nursing and Health Care  3 s.h.
113:133/131:133/172:133 The Anthropology of Women's Health  3 s.h.
113:184/172:131/152:184 Anthropology and International Health  3 s.h.
113:185/152:185/172:173 Medical Anthropology  3 s.h.
152:120 Global Health and Human Rights  2-3 s.h.
152:121 Health of Indigenous Peoples  3 s.h.
152:125 Topics in Global Health  1-3 s.h.
152:135 Global Health and Global Food  3 s.h.
152:137/16W:137 History of Public Health  3 s.h.
152:150 Research Design in Global Health  2-3 s.h.
152:151 Proseminar in Global Health  1 s.h.
152:152 Global Health Conference  1 s.h.
152:160 Global Health Seminar  3 s.h.
152:170/041:104 Health Care and Health Reforms in Russia  3 s.h.
152:182 Health Experience of Immigrants, Migrants, and Refugees  3 s.h.
175:111/152:111/173:111 International Health  3 s.h.
187:180 Human Rights Advocacy  3 s.h.

Human Rights Emphasis

Choose 12 s.h. from these:

026:034 Philosophy and the Just Society  3 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>030:179</td>
<td>Human Rights and Asian Values</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:016</td>
<td>Religion and Liberation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:155</td>
<td>Human Rights and Islam</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:164</td>
<td>The Middle East</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:170</td>
<td>Geography of Justice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:177</td>
<td>Environmental Justice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:193</td>
<td>Human Rights in the World Community</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>091:307</td>
<td>Law in the Muslim World</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>091:640</td>
<td>Human Trafficking</td>
<td>arr.</td>
</tr>
<tr>
<td>091:651</td>
<td>Law in Asia</td>
<td>arr.</td>
</tr>
<tr>
<td>103:045</td>
<td>Language Rights</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>152:120</td>
<td>Global Health and Human Rights</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>187:080</td>
<td>Introduction to Human Rights</td>
<td>3 s.h.</td>
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<tr>
<td>187:175</td>
<td>Child Labor and International Human Rights</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>187:180</td>
<td>Human Rights Advocacy</td>
<td>3 s.h.</td>
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</table>

**International Business Emphasis**

Choose 12 s.h. from these:

<table>
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<th>Course Title</th>
<th>Credit Hours</th>
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<td>06E:125</td>
<td>Global Economics and Business</td>
<td>3 s.h.</td>
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<tr>
<td>06E:129</td>
<td>Economic Growth and Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:164</td>
<td>Economies in Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:173</td>
<td>International Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:130</td>
<td>International Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06J:146</td>
<td>International Business Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06M:151</td>
<td>International Marketing</td>
<td>3 s.h.</td>
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<tr>
<td>009:115</td>
<td>Business French</td>
<td>3 s.h.</td>
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<tr>
<td>013:114</td>
<td>Business German</td>
<td>3 s.h.</td>
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<tr>
<td>030:167</td>
<td>Politics and the Multinational Enterprise</td>
<td>3 s.h.</td>
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<tr>
<td>030:170</td>
<td>The Politics of International Economics</td>
<td>3 s.h.</td>
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<tr>
<td>035:118</td>
<td>Business Spanish</td>
<td>3 s.h.</td>
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<td>102:297</td>
<td>Community Development Finance</td>
<td>3 s.h.</td>
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**International Communication and Information Emphasis**

Choose 12 s.h. from these:

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<td>009:030</td>
<td>Cultural Misunderstandings: France and U.S.A.</td>
<td>3 s.h.</td>
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<tr>
<td>030:166</td>
<td>Global Political Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:042</td>
<td>Intercultural Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:071</td>
<td>Communication and Contemporary Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:074</td>
<td>Media and Society</td>
<td>3 s.h.</td>
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<tr>
<td>036:086</td>
<td>Global Media Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:093</td>
<td>Rhetoric of War</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:142</td>
<td>Advanced Intercultural Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39J:129</td>
<td>Japan: Culture and Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:152/181:152</td>
<td>America in Other Words</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>103:011</td>
<td>Language and Society</td>
<td>3 s.h.</td>
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<tr>
<td>103:020</td>
<td>Introduction to the Study of Language</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:055</td>
<td>Languages of the World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:150</td>
<td>Language and Gender</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:014</td>
<td>Language, Culture, and Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:123</td>
<td>Language and Nationalism</td>
<td>3 s.h.</td>
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</tbody>
</table>

**International Politics and International Relations Emphasis**

Choose 12 s.h. from these:

<table>
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<tr>
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<tbody>
<tr>
<td>16A:152</td>
<td>United States in World Affairs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:155</td>
<td>Political Culture of U.S. Foreign Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:175/39J:175</td>
<td>Japan--U.S. Relations</td>
<td>3 s.h.</td>
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</tbody>
</table>
026:132 Introduction to Political Philosophy 3 s.h.
030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.
030:043 Introduction to Politics in the Muslim World 3 s.h.
030:045 Introduction to Comparative Politics 3 s.h.
030:060 Introduction to International Relations 3 s.h.
030:061 Introduction to American Foreign Policy 3 s.h.
030:130 Consequences of War 3 s.h.
030:148 Government and Politics of China 3 s.h.
030:155 International Courts: The Intersection of Law and Politics 3 s.h.
030:156 Ethnic and Religious Conflict in the Muslim World 3 s.h.
030:160 Women and Politics in Global Perspective 3 s.h.
030:162 American Foreign Policies 3 s.h.
030:164 Race in World Politics 3 s.h.
030:165 International Conflict 3 s.h.
030:166 Global Political Communication 3 s.h.
030:168 Politics of Terrorism 3 s.h.
030:169 Problems of International Politics 3 s.h.
030:170 The Politics of International Economics 3 s.h.
030:177 Globalization 3 s.h.
030:183 Honors Seminar on Comparative Politics 3 s.h.
030:184 Honors Seminar on International Politics 3 s.h.
036:042/042:042 Intercultural Communication 3 s.h.
036:142 Advanced Intercultural Communication 3 s.h.
044:010 The Contemporary Global System 4 s.h.
044:164 The Middle East 3 s.h.
091:193 Human Rights in the World Community 1-3 s.h.
091:195 Introduction to Public International Law 1-3 s.h.
113:104 Cultural Politics 3 s.h.
187:005 Making of the Modern Global System 3 s.h.
187:180 Human Rights Advocacy 3 s.h.

Postcolonial and Diasporic Studies Emphasis
Choose 12 s.h. from these:

008:031 Introduction to Postcolonial Studies 3 s.h.
008:132 Literature of the Indian Subcontinent 3 s.h.
008:138 Topics in Postcolonial Studies 3 s.h.
008:161/048:161 Transnational and Postcolonial Writing by Women 3 s.h.
009:120 French-Speaking Cultures 3 s.h.
009:146 Francophone Cinema 4, 3 s.h.
009:163 Francophone Literature of the African Diaspora 3 s.h.
16A:112 Mexican American History 3 s.h.
16E:130 Modern European Imperialism 3 s.h.
16W:114 Latin America and the U.S.: The Historical Perspective 3 s.h.
16W:153 Topics in the Modern Middle East 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
030:164 Race in World Politics 3 s.h.
049:153 Costume Crafts II 3 s.h.
091:640 Human Trafficking arr.
113:124 Colonialism and Culture 3 s.h.
129:138 African and African American Interactions 3 s.h.
131:134/113:134 Gender and Indian Diaspora 3 s.h.
131:149 Transnational Feminism 3 s.h.

War, Peace, and Security Emphasis
Choose 12 s.h. from these:

016:017 Issues: Twentieth-Century Crisis 3 s.h.
016:144 War and Peace in the Twentieth Century 3 s.h.
In INTERNATIONAL STUDIES ELECTIVES

Students must complete an additional 6 s.h. of international studies elective course work. Electives may be chosen from courses approved for the international studies emphasis areas, excluding any courses approved in the student’s own emphasis area. At least 3 s.h. must be earned in upper-level course work.

LANGUAGE REQUIREMENT

All students must complete a minimum of two semesters of advanced foreign language study (work beyond the minimum required to complete the foreign language requirement of the General Education Program), or two semesters of a second foreign language at any level. This requirement may be fulfilled either by completing two semesters of upper-level study in the same language used to complete the General Education Program or by completing two semesters, or the equivalent, of a second foreign language.

In fulfilling the language requirement, most students are eligible to receive an additional 4 s.h. of ungraded credit under the Foreign Language Incentive Program (FLIP). This credit may be applied to the minimum 120 s.h. required for graduation, but it does not count toward requirements for the international studies major.

RESEARCH AND PROJECT PREPARATION

All students prepare for the required senior project by completing 187:095 Research and Final Project Preparation (2 s.h.), in which they learn research methodologies and prepare a detailed project proposal.

INTERNATIONAL STUDIES SENIOR PROJECT

All students enroll in 187:199 International Studies Senior Project during their last year of study. In this independent study course, students complete a research essay of 15-20 pages or produce a creative work focusing on a topic in their geographic or thematic emphasis area. The course is completed under the supervision of a faculty mentor in the emphasis area.

Study Abroad Opportunity

Students are strongly encouraged to incorporate an approved study abroad experience into their international studies major. Credit earned while studying abroad may be applied toward the requirements for the major, as appropriate. International studies majors who study abroad in an approved program may apply for a $1,000 scholarship from International Programs in addition to other financial aid and scholarships for which they are eligible. For scholarship requirements, deadlines, and application materials, see Study Abroad Guidelines and Scholarships on the International Studies web site.

It is important to plan ahead for study abroad. Students should meet with an advisor in the Office for Study Abroad shortly after choosing their geographic or thematic emphasis for help in selecting an appropriate study abroad program. Students planning to earn a bachelor’s degree in four years must schedule study abroad advising appointments (see "Four-Year Graduation Plan," below).
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete in order to stay on the University's Four-Year Graduation Plan.

Note: Students who intend to study abroad in their junior year should schedule an appointment during their fourth semester to meet with an advisor from the Office for Study Abroad. Those who intend to study abroad in their senior year should schedule an appointment during their sixth semester to meet with an advisor from the Office for Study Abroad.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least three courses in the major (7 s.h., a foundation course, one core course, and the orientation course) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least seven courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least 11 courses in the major, including the required research preparation course

During the eighth semester: enrollment in all remaining course work in the major (three courses), all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students may earn a B.A. with honors in international studies. The option is available to students with a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in all course work applied to the international studies major and all course work that may be applied to the major. To graduate with honors, students are required to complete a minimum of 42 s.h., including three courses (9 s.h.) in a second emphasis area (this takes the place of the 6 s.h. international studies elective requirement). In place of 187:199 International Studies Senior Project, honors students must complete 187:198 Honors Thesis in International Studies and present their research in a poster session sponsored by International Programs.

Honors students must complete at least 15 s.h. in upper-level course work. At least 6 s.h. of the 42 s.h. required for the honors major must be earned in courses designated as honors courses. Students may enroll in honors courses offered by individual departments, or they may work with instructors to designate any approved international studies course as an honors course by adding additional writing requirements.

Contact the University of Iowa Honors Program for more information about honors study at Iowa.

Minor

The minor in international studies requires a minimum of 15 s.h. in courses approved for the international studies major, including 12 s.h. in upper-level courses taken at The University of Iowa, and 3 s.h. chosen from courses approved for the international studies core requirement. Students must choose 12 s.h. from the international studies major course lists, including emphasis areas, above. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Because the minor is interdisciplinary, students may apply a maximum of 6 s.h. from any single department or program toward the international studies minor.

Graduate Program

The International Studies Program offers a Master of Arts in international studies.

Master of Arts

The Master of Arts in international studies requires a minimum of 36 s.h. of graduate credit; a thesis or final project is required. The program is designed for students who seek an interdisciplinary approach to graduate study, especially those who have identified an area of international interest and who wish to pursue a tailor-made program on international issues.

The 36 s.h. required for the M.A. includes 33 s.h. of graded course work (thesis credit is not graded); 24 s.h. must be earned after admission to the M.A. program, with at least 8 s.h. earned in residence on the University of Iowa campus. Students must earn a minimum of 21 s.h. in formal classroom work (excluding independent study, research, thesis work, and special projects); no more than 9 s.h. of independent study, research, and thesis credit may be counted toward the degree. A maximum of 12 s.h. earned at another institution or in another University of Iowa graduate
program may be counted toward the degree.

Students must maintain a g.p.a. of at least 3.00 in all University of Iowa and transfer course work applied toward the degree.

Basic requirements for the M.A. are as follows.

Graduate-level seminars 9 s.h.
Foreign language study 6 s.h.
International research 0-6 s.h.
Additional course work 12-21 s.h.
Thesis or final project 0-3 s.h.

All M.A. students must submit a plan of study when they apply for admission to the program. The study plan must identify a focus area for the student's course work and research. During their first semester in the program, students review and revise the study plan in consultation with their advisory committee; changes must be approved in writing by the committee.

The advisory committee must include at least three tenured or tenure-track faculty members, who may be drawn from any college at the University. One of the committee members serves as the student's primary advisor and chairs the committee. Students should meet with their advisors at least once each semester, before registration for the next term. Additional meetings and consultations with the advisor and committee members should take place as needed.

International Programs provides a list of faculty mentors, searchable by focus area; see International Studies Mentor Directory on the International Program web site.

Admission

Applicants to the M.A. in international studies must meet the application requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Prospective students are urged to consult with the program about their academic objectives.

Admission is for fall entry only; application deadline is February 15 for the following fall.

For detailed application information, see Application & Admission on the International Studies M.A. web page.

International Studies Courses

187:001 International Studies Colloquium 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:002 Issues in International Studies 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:003 Issues in International Studies 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:004 Issues in International Studies 1 s.h.
Modules focusing on varied topics, taught by international studies faculty members.

187:005 Making of the Modern Global System 3 s.h.
Formation of the modern global system; capitalism, science and technology, representative government and nationalism, colonialism and decolonization; rise of these institutions in the West, response and adaptation by a nonwestern society.

187:006 Developed and Developing Places 3 s.h.
Geography and the world distribution of key cultural factors—population, religion, and per capita income; economic and demographic differences between developed and developing countries.

187:007 The European Union 3 s.h.
Brief history and rationale for the European Union; environmental, economic, social, and political aspects of this potential superpower.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>187:010</td>
<td>Orientation to International Studies</td>
<td>1 s.h.</td>
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<tr>
<td>187:012</td>
<td>Germany and the Amanas</td>
<td>1 s.h.</td>
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<tr>
<td>187:013</td>
<td>Poland and the Czech Republic</td>
<td>1 s.h.</td>
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<td>187:014</td>
<td>The Netherlands and Pella</td>
<td>1 s.h.</td>
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<tr>
<td>187:020</td>
<td>Introduction to International Studies</td>
<td>3 s.h.</td>
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<tr>
<td>187:029</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
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<td>187:030</td>
<td>International Crossroads Seminar</td>
<td>1 s.h.</td>
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<tr>
<td>187:042</td>
<td>Intercultural Communication</td>
<td>3 s.h.</td>
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<tr>
<td>187:050</td>
<td>Introduction: East European and Central Asian Cultures</td>
<td>3 s.h.</td>
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<tr>
<td>187:060</td>
<td>The Middle East Today: A Social Inquiry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>187:070</td>
<td>Introduction to Latin American Studies</td>
<td>3 s.h.</td>
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<tr>
<td>187:080</td>
<td>Introduction to Human Rights</td>
<td>3 s.h.</td>
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<tr>
<td>187:081</td>
<td>Autonomous Language Learning</td>
<td>1-3 s.h.</td>
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<tr>
<td>187:095</td>
<td>Research and Final Project Preparation</td>
<td>2 s.h.</td>
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<tr>
<td>187:096</td>
<td>Focused Academic Research for International Studies Majors</td>
<td>1 s.h.</td>
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<tr>
<td>187:101</td>
<td>Intensive Less-Commonly-Taught Languages</td>
<td>4-6 s.h.</td>
</tr>
</tbody>
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**187:010 Orientation to International Studies**
Introduction to concept of international competency; academic options in the international studies major, use of required e-folio, intentional planning model for approach to interdisciplinary study. Prerequisite: international studies major.

**187:012 Germany and the Amanas**
Contemporary issues of Germany, patterns of immigration to Amana, Iowa.

**187:013 Poland and the Czech Republic**
Contemporary issues of Poland, the Czech Republic, and Slovakia; immigration paths to the United States, and Iowa settlements.

**187:014 The Netherlands and Pella**
History and culture of the Netherlands; immigration pattern of the Dutch who came to Pella, Iowa.

**187:020 Introduction to International Studies**
Introduction to the interdisciplinary field of international studies.

**187:029 First-Year Seminar**
Small discussion class taught by a faculty member; international topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**187:030 International Crossroads Seminar**
Introduction to international campus resources; cross-cultural communication skills; service learning project. Prerequisite: UI International Crossroads Community residence.

**187:042 Intercultural Communication**
Relationships among culture-based assumptions, values, thought patterns, communication behavior; theory and practice. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 036:042, 042:042.

**187:050 Introduction: East European and Central Asian Cultures**
Introduction to study of major East European, Russian, and Eurasian cultures. Same as 048:050.

**187:060 The Middle East Today: A Social Inquiry**
Introduction to history, society, and culture in the modern Middle East.

**187:070 Introduction to Latin American Studies**
Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as 035:070, 038:070, 130:070.

**187:080 Introduction to Human Rights**
Analysis and evaluation of the international human rights program; relationship between human rights and international law.

**187:081 Autonomous Language Learning**
The art and science of self-directed language study in conjunction with work on a less-commonly-taught language; independent study; for experienced language learners. Prerequisite: consent of instructor. Same as 164:081.

**187:095 Research and Final Project Preparation**
Preparation for senior project, development of course proposal. Prerequisite: junior or higher standing.

**187:096 Focused Academic Research for International Studies Majors**
Same as 417:096.

**187:101 Intensive Less-Commonly-Taught Languages**
Intensive study in varied less-commonly-taught languages; emphasis on speaking, listening, and reading in preparation for academic study or research abroad. Prerequisite: completion of GE foreign language component. Same as 164:101.
187:105 Independent Study in International Studies
Research on a topic of international significance.

187:111 Conversation in Less Commonly Taught Languages
Foreign languages not commonly taught on campus; beyond elementary level; content adapted to enrolled students. Prerequisites: previous study of the language indicated for the section and consent of instructor. Same as 164:111.

187:142 Introduction to Caribbean Studies
Diversity and unity of Caribbean culture; geography, history, culture; Hispanic, Francophone, and Anglophone Caribbean texts. Same as 035:142.

187:150 Internetworks in International Development
The Internet and online development resources; technical background, accessibility impact; advanced skill development in Internet communication and authoring techniques; previous knowledge not required.

187:159 African Literature Today
Contemporary written and oral African literary texts, literary theories relevant to study of African literatures. Same as 008:159, 048:159.

187:160 Modern Arab Narrative Identities
Twentieth-century Arab identities and experiences explored through Arabic literature.

187:165 Cities of the Global South
Twenty-first-century cities of the global south; interdisciplinary approach.

Introduction to Islam; growth and development of Islam; sociopolitical and historical forces relevant to contemporary crisis in the Middle East; Islam and the United States.

187:175 Child Labor and International Human Rights
Complexity of child labor in global, regional, national, and local contexts; international human rights system, current programs and strategies for reducing or eliminating abusive child labor.

187:180 Human Rights Advocacy
Theoretical foundations and critical issues for international human rights advocacy and international humanitarian movements; honors proseminar. Prerequisite: junior or higher standing.

187:185 Topics in REEES
Varied topics; interdisciplinary focus on Russian, East European, and Eurasian studies. Same as 048:184.

187:189 Provost's Forum on International Affairs
Opportunity to debate, discuss, and reflect upon urgent and significant international issues; symposium.

187:198 Honors Thesis in International Studies

187:199 International Studies Senior Project

187:205 International Graduate Research
Independent study directed by a faculty member.

187:210 International Programs Summer Institute for Teachers
What Iowans need to know about the rest of the world; professional development workshop for teachers. One week. Same as 07S:210.

187:211 International Studies Professional Development for Teachers
Contemporary issues in international studies and classroom integration of global perspectives; for current and pre-service K-12 teachers. Repeatable.
187:299 International Studies M.A. Thesis
Thesis for interdisciplinary M.A. with international studies emphasis. Repeatable.
Undergraduate Programs

The School of Journalism and Mass Communication offers a Bachelor of Arts and a Bachelor of Science in journalism and mass communication. Both degrees prepare students for careers in the field. The school also offers a minor in mass communication.

Journalistic writing is the core of the undergraduate programs. Students are required to take both professional and conceptual courses offered by the school; they develop professional skills while studying the historical, legal, cultural, and institutional roles of media in society. The programs also build upon the University's commitment to the liberal arts and sciences, requiring majors to complete extensive academic work outside the school.

Graduates find employment in a variety of areas such as newspapers, magazines, radio, television, online communications, public relations, publication design, photojournalism, and media research.

The school is accredited by the Accrediting Council on Education in Journalism and Mass Communications.

Selective Admission

To preserve the quality of its undergraduate program, the School of Journalism and Mass Communication has a selective admission policy. Undergraduate students with a declared interest in journalism are admitted to the major in one of two ways. First-year students who enter the University with honors standing in the College of Liberal Arts and Sciences or as Presidential Scholars, Old Gold Scholars, or Daily Iowan Scholars are guaranteed admission to the major as long as they have satisfied the necessary prerequisites. Most students are classified as having a "journalism and mass communication interest" and must apply for admission to the major, typically during the semester in which they will complete the following: 019:090 Social Scientific Foundations of Communication and 019:091 Cultural and Historical Foundations of Communication; all required rhetoric courses; and a total of at least 45 s.h. of course work (or 30 s.h. for students in the University of Iowa Honors Program).

The primary criterion for admission to major status is overall academic performance. Statement of interest, demonstrated writing ability, prior journalistic experience, participation in journalism student organizations, and performance in journalism courses also are considered for applicants with a demonstrated focus on journalism as a career. The number of students accepted each semester depends on the number of students already in the program and available resources. The school reviews applications with the goal of admitting the most qualified students.

For applications and deadline information, contact the School of Journalism and Mass Communication.

Transfer Students

Transfer students who wish to major in journalism are classified as having a "journalism and mass communication interest." They may apply to the major during the semester in which they complete at least 45 s.h. of course work at The University of Iowa and other institutions, including the rhetoric requirement and the foundation courses 019:090 Social Scientific Foundations of Communication and 019:091 Cultural and Historical Foundations of Communication. Courses taken at other institutions cannot be substituted for 019:090 Social Scientific Foundations of Communication or 019:091 Cultural and Historical Foundations of Communication.

The school may accept up to 7 s.h. of transfer credit in journalism toward the major in journalism and mass communication, or up to 3 s.h. toward the minor in mass communication; transfer courses must have been completed at a school accredited by the Association for Education in Journalism and Mass Communication. Course work taken at another school sometimes may be used to satisfy the second major or concentration area requirements. Transfer credit intended to meet School of Journalism and Mass Communication requirements must be approved by the head of undergraduate studies.

Bachelor of Arts, Bachelor of Science

The Bachelor of Arts and Bachelor of Science in journalism and mass communication require a minimum of 120 s.h., including 33 s.h. of work for the major. Students also must complete a second major or 24 s.h. in a second concentration area. They may count a maximum of 40 s.h. in journalism and mass communication credit toward graduation. A g.p.a. of at least 2.00 in the major is required.
Students must complete the College of Liberal Arts and Sciences General Education Program.

Each journalism student develops a study plan in consultation with an assigned faculty advisor.

The journalism major requires the following course work. Students must complete a minimum of 33 s.h., but no more than 40 s.h., in journalism and mass communication.

PREMAJOR FOUNDATION

- 019:090 Social Scientific Foundations of Communication 3 s.h.
- 019:091 Cultural and Historical Foundations of Communication 3 s.h.

JOURNALISM PROFESSIONAL SKILLS COURSES

- 019:078 Journalism Issues 1 s.h.
- 019:088 Multimedia Introduction 1 s.h.
- 019:098 Journalistic Reporting and Writing 3 s.h.
- One intermediate reporting/writing course (019:120-019:129) 4 s.h.
- A second reporting/writing course (019:120-019:129, 019:171) 4 s.h.
- One workshop (019:130-019:139, 019:172-019:178) 4 s.h.
- A third reporting/writing course or one workshop (019:120-019:129, 019:130-019:139, 019:171-019:178) 4 s.h.

CONCEPTUAL COURSES

- 019:140 Legal Issues in Mass Communication 3 s.h.
- One advanced conceptual course (019:141-019:169) 3 s.h.

ELECTIVES (OPTIONAL)

Students may earn up to 7 s.h. in additional journalism and mass communication course work, but they may not count more than 40 s.h. of credit in the discipline toward graduation.

GRADUATION PORTFOLIO

Seniors must complete an approved graduation portfolio. Guidelines for portfolios are available at the school's Resource Center.

SECOND MAJOR OR CONCENTRATION AREA

Every student with a major in journalism must complete a second major or a concentration area outside the School of Journalism and Mass Communication. Study in the second major or concentration area enables students to acquire a substantial body of knowledge or expertise in a relevant area, learn how another discipline views the world, and/or develop a companion set of skills to those in journalism and mass communication.

Students who satisfy the requirement by completing a concentration area must choose 24 s.h. of related course work in one or more departments; at least 15 of the 24 s.h. must be earned in advanced courses (in most departments, advanced courses are numbered 100 or above). B.A. students who complete a minor in business administration are credited with completing a second concentration area. Course work in the concentration area must be arranged in consultation with the student's advisor; each student must have the advisor's written endorsement of the second major or concentration area before graduation.

Second Major or Concentration Area for the B.A.

Bachelor of Arts students must complete the requirements for the journalism and mass communication major (33 s.h.) and must satisfy the school's second major or concentration area requirement in one of two ways.

Option 1: complete a B.A. major in another department

Option 2: complete a 24 s.h. concentration of related courses in one or more departments that offer B.A. degrees, or complete a minor in business administration

Second Major or Concentration Area for the B.S.
Bachelor of Science students must complete the requirements for the journalism and mass communication major (33 s.h.) and must satisfy the school's second major or concentration area requirement in one of two ways.

**Option 1:** complete a B.S. major in a natural, mathematical, or social science

**Option 2:** complete a 24 s.h. concentration of related courses in the social sciences (economics, geography, political science, psychology, or sociology) and/or the natural and mathematical sciences; and complete all the special math, research methods, statistics, computer science, and/or cognate science requirements required for the B.S. in the department in which the majority of concentration area courses are taken

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Note: With the exception of students admitted to the major directly upon their first enrollment in the University, students are admitted to the School of Journalism and Mass Communication on a competitive, selective basis. The Four-Year Graduation Plan agreement applies only to students who are admitted to major status by the first semester of their sophomore year. Also, each student must complete a second major or a concentration area consisting of at least 24 s.h., of which 15 s.h. must be earned in advanced courses. These checkpoints show only the minimum requirements for a second concentration area, not the requirements for a second major.

**Before the third semester begins:** either 019:090 Social Scientific Foundations of Communication or 019:091 Cultural and Historical Foundations of Communication or both, and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** 019:098 Journalistic Reporting and Writing, an additional course in the major (e.g., 019:140 Legal Issues in Mass Communication), at least one second-area course, and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** two required professional skills courses; one advanced, conceptual, or elective course in the major; three additional second-area courses; and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** two additional required professional skills courses; one advanced, conceptual, or elective course in the major; and two more second-area courses

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, all remaining courses in the second area, and a sufficient number of semester hours to graduate

**Honors**

The University of Iowa Honors Program gives students with outstanding academic records the opportunity to do honors course work under faculty guidance.

To graduate with honors in journalism and mass communication, a student must have a g.p.a. of at least 3.50 in the major and must be a member of the University of Iowa Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

Honors students must complete 019:191 Honors Project (3 s.h.) under the supervision of a faculty member. The project may be a thesis or a professional project, typically completed during the last semester of the senior year. Students are encouraged but not required to take 019:190 Honors Readings (1 s.h.) (1-3 s.h.) to prepare for the project.

All majors with an overall g.p.a. of at least 3.33 are encouraged to take any journalism and mass communication course for honors credit and to make use of other honors opportunities in the school. Visit the Journalism Honors Program on the school's web site or contact the school's honors advisor for details.

**Minor**

The minor in mass communication requires a minimum of 15 s.h. in mass communication courses, including 12 s.h. in advanced courses; conceptual courses numbered 019:140 Legal Issues in Mass Communication through 019:169 Introductory Topics in Mass Communication are considered advanced for the minor. Students must maintain a g.p.a. of at least 2.00 in the minor. Courses for the minor may not be taken pass/nonpass. Students are encouraged to take one of the following: 019:090 Social Scientific Foundations of Communication (3 s.h.), 019:091 Cultural and Historical Foundations of Communication (3 s.h.), and 019:095 Media and Consumers (3 s.h.).

The minor introduces students to the field of mass communication; it does not prepare them for careers in journalism.
National Honor Society

The School's chapter of Kappa Tau Alpha, the national society honoring scholarship in journalism and mass communication, was founded in 1936 and is named for former director Leslie G. Moeller. Students are considered for membership if their grade-point average places them in the top 10 percent of their class and they have completed at least five semesters of University work, including a minimum of 9 s.h. in journalism and mass communications skills courses. Contact the School's Kappa Tau Alpha advisor for details.

Graduate Programs

The school offers a Master of Arts in journalism, with two emphases: professional journalism, and mass communication. It also offers a Doctor of Philosophy in mass communications.

Master of Arts

The Master of Arts in journalism with professional journalism emphasis requires 30-35 s.h. of graduate credit, including successful completion of a master's project. The Master of Arts in journalism with mass communication emphasis requires 32 s.h. of graduate credit, including completion of a thesis. Each emphasis is described below. For more detailed descriptions, see the Graduate Studies Handbook or contact the School of Journalism and Mass Communication.

The M.A. program admits students for fall entry.

M.A. with Professional Journalism Emphasis

The Master of Arts with professional journalism emphasis is designed for students who have an academic or professional background in media communication and who wish to enhance their careers through specialized study in a specific area. It is a terminal degree, not preparation for doctoral study. Exceptional applicants without the required background may be accepted if they complete one noncredit preparatory course.

In consultation with an academic advisor, each student creates an individual program of courses chosen from inside and outside the school. Examples of areas inside the school are narrative writing, investigative reporting, publication design, and broadcast news. Some areas outside the school are the arts, law, political science, business, medicine, science, the environment, book arts, and race, gender, and sexuality studies.

Students who have a journalism background might develop a focus in an outside area for some of their electives. Those new to journalism and media communication may wish to focus their study on areas inside the school.

Building on conceptual and advanced skills courses, students complete the program with a master's project in a professional area, such as an in-depth reporting series; a design, multimedia, video, or documentary photography project; or applied research in mass communication.

All courses are chosen in consultation with the student's academic advisor.

The following courses are required.

- 019:225 Contemporary Problems in Journalism 3 s.h.
- 019:226 Master's Advanced Reporting and Writing 3 s.h.
- One conceptual course from 019:140-019:169, or 019:250 and above 3 s.h.
- Three advanced writing or workshop courses from the 019:120, 019:130, 019:170, 019:220 series 12 s.h.
- Three electives in journalism and mass communication or an outside focus area 9-12 s.h.
- 019:299 Masters Research (professional project) 3 s.h.

Students who have not taken a recent U.S. media law class must enroll in 019:140 Legal Issues in Mass Communication or an alternative media law course, with the instructor's consent and the advisor's approval.

M.A. with Media Communication Emphasis

The Master of Arts with media communication emphasis offers specialization in mass communication phenomena and emphasizes communication research, theory, and methodology. It prepares students for doctoral studies.

Students in the media communication emphasis take foundation courses in common with beginning Ph.D. students. Because of the program's interdisciplinary nature, students are expected to take courses outside the school, as determined in consultation with their advisors. The course work should provide students with sufficient theoretical and methodological preparation to complete the thesis.

The following courses are required.
Doctor of Philosophy

The Doctor of Philosophy in mass communications requires 80 s.h. of graduate credit. It is designed for students who have completed an M.A. thesis.

The program emphasizes interdisciplinary inquiry into media communication phenomena from cultural, historical, and social perspectives. It is defined by the scholarly interests of its faculty, which include historical, legal, critical, cultural, social, feminist, and international aspects of media communication, both verbal and visual; comparative communication; convergence; new media; health communication; popular culture; and globalization. Faculty members use qualitative or quantitative methods in their research and teaching.

The program is highly individualized. In consultation with his or her advisor, each student draws on courses offered by the School of Journalism and Mass Communication as well as other academic units to develop a course of study that reflects his or her academic background, experience, professional goals, and intellectual interests.

Students may count up to 30 s.h. of master's degree credit toward the 80 s.h. required for the Ph.D., with the graduate committee's approval, as long as the credit was earned in courses relevant to the Ph.D. study plan. The Graduate College does not accept transfer credit for professional skills courses. Students who have earned professional master's degrees must take additional Ph.D. course work.

The Ph.D. program admits students for fall entry.

The following courses are required.

- 019:231 Media Communication Theory I 3 s.h.
- 019:232 Media Communication Theory II 3 s.h.
- 019:235 Media Communication Research Methods I 3 s.h.
- 019:236 Media Communication Research Methods II 3 s.h.
- 019:220 Masters Seminar (taken twice for 1 s.h.) 2 s.h.
- Advanced methods courses 3 s.h.
- Electives (at least 6 s.h. in journalism and mass communication) 12 s.h.
- 019:299 Masters Research (thesis) 3 s.h.

For a more detailed description of the Ph.D. program, see the Graduate Studies Handbook or contact the School of Journalism and Mass Communication.

Joint J.D./M.A. and J.D./Ph.D.

The School of Journalism and Mass Communication and the College of Law offer a joint Juris Doctor/Master of Arts and a joint Juris Doctor/Doctor of Philosophy. The joint degree programs allow students to count a limited amount of credit toward both degrees. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. Admission for journalism and mass communication graduate programs is for fall entry.

For information about the J.D., see Juris Doctor (College of Law) in the Catalog.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.
Facilities and Resources

Adler Journalism and Mass Communication Building

The School of Journalism and Mass Communication moved into the Philip D. Adler Journalism and Mass Communication Building in January 2005. The 65,000-square-foot building has computer laboratories for audio, video, design, writing and web publishing, and a resource center. A photography laboratory is located nearby. The building also is home to offices of the Iowa High School Press Association; the Quill and Scroll Society, an international honor society for high school journalists; the University's award-winning student newspaper, The Daily Iowan, and Daily Iowan TV, a student-run newscast.

Iowa Center for Communication Study

The Iowa Center for Communication Study encourages and facilitates student and faculty research in communication. It also sponsors publications and provides editorial oversight for the Journal of Communication Inquiry.

Financial Support

More than $130,000 in scholarships and awards is disbursed to journalism and mass communication students each year. Scholarship information and applications are available each fall. Visit Journalism & Mass Communication Scholarships or contact the School of Journalism and Mass Communication.

The school offers research and teaching assistantships for graduate students; preference is given to Ph.D. students. Journalism and mass communication students have been successful in winning competitive fellowships open to all graduate students; applicants must be nominated by the graduate committee.

The school has a program of modest financial support for undergraduate and graduate student research projects.

Professional Enrichment

Internships

The school encourages undergraduate majors and Master of Science professional journalism emphasis students to complete at least one internship. The school's internship and assessment coordinator helps students find appropriate positions.

Undergraduate students may earn up to 3 s.h. of internship credit, registering with appropriate faculty sponsorship for 019:099 Journalism Internship (1-3 s.h.). Internships do not fulfill requirements for the major, but internship credit counts toward the maximum 40 s.h. of journalism and mass communication credit that may be applied toward the bachelor's degree. Students may take internships for no credit through 409:019 Internship in Journalism.

Students also are encouraged to pursue opportunities for journalism experience on campus through student-operated media, including The Daily Iowan, Daily Iowan TV, and KRUI-FM radio.

Job Placement

The school's internship and assessment coordinator helps students seeking career guidance and employment opportunities. The school compiles and publicizes notices of professional jobs open to journalism students and graduates. It also cooperates with the University's Pomerantz Career Center in providing career guidance and placement services as well as workshops and programs on seeking jobs.

Activities

The school engages in a variety of activities for the enrichment of students, faculty, and the entire campus. Speakers visit campus each year under lectureships funded by the John F. Murray and Leslie G. Moeller Fund. In addition, guest speakers are funded through the Hearst Visiting Professionals Program and the Hageboeck Daily Iowan Visiting Professionals Program. Campus organizations for students include Kappa Tau Alpha (KTA, a national society honoring scholarship in journalism), the National Association of Black Journalists (NABJ), the Public Relations Student Society of America (PRSSA), the Society of Professional Journalists (SPJ), the Radio and Television News Directors’ Association (RTNDA), and Ed on Campus (EOC).

Journalism and Mass Communication Courses

Primarily for Undergraduates
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>019:029</td>
<td>First-Year Seminar</td>
<td>1-2 s.h.</td>
<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.</td>
</tr>
<tr>
<td>019:078</td>
<td>Journalism Issues</td>
<td>1 s.h.</td>
<td>Key issues and current challenges and controversies in news media and journalism, explored in conjunction with introduction to journalistic reporting and writing. Prerequisite: journalism major or consent of undergraduate director. Corequisites: 019:088 and 019:098.</td>
</tr>
<tr>
<td>019:088</td>
<td>Multimedia Introduction</td>
<td>1 s.h.</td>
<td>Introduction to essential tools and techniques of the multimedia news environment. Prerequisite: journalism major or consent of undergraduate director. Corequisites: 019:078 and 019:098.</td>
</tr>
<tr>
<td>019:090</td>
<td>Social Scientific Foundations of Communication</td>
<td>3 s.h.</td>
<td>Introduction to mass communication theory as it relates to practical applications in the media industry and American society. GE: Social Sciences.</td>
</tr>
<tr>
<td>019:091</td>
<td>Cultural and Historical Foundations of Communication</td>
<td>3 s.h.</td>
<td>Historical development of journalism in the United States; cultural, historical content. GE: Historical Perspectives.</td>
</tr>
<tr>
<td>019:095</td>
<td>Media and Consumers</td>
<td>3 s.h.</td>
<td>Communications media in historical, political, economic contexts and their relationships with audiences; criteria for evaluating media content in relation to nature and consequences of news, entertainment, advertising. GE: Social Sciences.</td>
</tr>
<tr>
<td>019:096</td>
<td>Communication and Public Relations</td>
<td>3 s.h.</td>
<td>Theory and practice of public relations; cultural, social, organizational roles of public relations, opportunities, problems, and solutions. Prerequisite: journalism major or consent of undergraduate director.</td>
</tr>
<tr>
<td>019:098</td>
<td>Journalistic Reporting and Writing</td>
<td>3 s.h.</td>
<td>Fundamentals of journalistic reporting and writing; beats and enterprise, multimedia, journalism skills. Prerequisite: journalism major or consent of undergraduate director. Corequisites: 019:078 and 019:088.</td>
</tr>
<tr>
<td>019:099</td>
<td>Journalism Internship</td>
<td>1-3 s.h.</td>
<td>Faculty-supervised professional work experience in journalism and mass communication. Prerequisites: 019:098, journalism major, and consent of instructor.</td>
</tr>
<tr>
<td>019:101</td>
<td>Methods: Secondary School Journalism</td>
<td>3 s.h.</td>
<td>Methods and materials for teaching high school journalism; publication policies, staff organization, production schedules, technology, the Internet, and techniques for advising student publications; experience in simulated teaching situations. Offered fall semesters. Same as 07S:113.</td>
</tr>
<tr>
<td>019:102</td>
<td>Workshop for Secondary School Journalism/Communication Teachers</td>
<td>1-3 s.h.</td>
<td>Workshops on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalistic writing techniques, advising student publications. Same as 07S:130.</td>
</tr>
<tr>
<td>019:120</td>
<td>Specialized Reporting and Writing</td>
<td>4 s.h.</td>
<td>Topics may include public affairs, law, science, business, medicine, intercultural affairs, education, computer-assisted reporting. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.</td>
</tr>
<tr>
<td>019:121</td>
<td>Depth Reporting and Writing</td>
<td>4 s.h.</td>
<td>Enterprise reporting; emphasis on reporter as researcher, organizer, writer of complex stories in a variety of contexts. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.</td>
</tr>
<tr>
<td>019:122</td>
<td>Magazine Reporting and Writing</td>
<td>4 s.h.</td>
<td>Finding ideas, researching, interviewing; problems of organization and style; identification of audiences and markets; development of writing skills. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.</td>
</tr>
<tr>
<td>019:123</td>
<td>Broadcast Journalism Reporting and Writing</td>
<td>4 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
Principles; gathering, writing, editing, reporting the news; techniques and concepts as a foundation for understanding, successfully writing, and delivering broadcast news. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:124 Persuasive Writing 4 s.h.
Principles and practices of persuasive writing; focus on public relations; may include editorials, op-ed pieces, magazine essays, reviews. Prerequisites: 019:096, 019:098, and journalism major, or consent of undergraduate director.

019:125 Freelance Reporting and Writing 4 s.h.
Approaches to writing and marketing articles to magazines, newspapers, other publications; developing ideas, researching periodical markets, writing queries, writing and rewriting articles for publication. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Prerequisites: 019:098 and journalism major, or consent of undergraduate director. Same as 08N:125.

019:126 Arts and Culture Reporting and Writing 4 s.h.
Writing about arts and culture in a range of formats (e.g., news, profiles, features, criticism, essays); emphasis on original reporting that draws on resources, issues, people, and events on campus and in the community, especially in visual and performing arts. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:127 Narrative Journalism 4 s.h.
Process of writing the true story; development of skills in researching, interviewing, information gathering, organization, story-telling techniques, writing final story; story publication in magazines, newspapers, journals, online. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:128 Writing Across Cultures 4 s.h.
Forms of travel writing and other types of crosscultural reporting; skills, knowledge, understandings vital to writing well about an increasingly multicultural and diverse world. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:129 Feature Reporting and Writing 4 s.h.
Storytelling techniques for magazine, newspaper, web site features; stylistic flair; human elements in stories; research, interviewing, and reporting. Prerequisite: 019:098 and journalism major, or consent of undergraduate director.

019:130 Media Workshop 4 s.h.
Analysis and solution of problems with communication strategies and/or media products; public relations, newsletter production, radio, media research, web basics, global media, interviewing, PR fund-raising. Repeatable. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:131 Publication Design Workshop 4 s.h.
Problems of design, layout and production; practical and aesthetic considerations; digital techniques; creative projects. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:132 Photojournalism Workshop 4 s.h.
Techniques; basic craft, location shooting, editing photographs; group critiques of assignments. Prerequisite: consent of instructor.

019:134 Television News 4 s.h.
Electronic news gathering (ENG); conceptualization, shooting, editing basic news packages. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:135 Public Relations Practice Workshop 4 s.h.
Development and presentation of public relations campaigns for client organizations; communication theory and research techniques applied to analyzing and solving public relations problems through objective-based strategic planning. Prerequisites: 019:096, 019:098, and journalism major, or consent of undergraduate director.

019:136 Editing 4 s.h.
Principles and process of editing content for publication; micro- and macroediting, headline writing, other aspects of editing. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:138 Online Journalism 4 s.h.
Creation of original journalistic web sites incorporating writing, design, and structure; contemporary online media issues. Prerequisites: 019:098 and journalism major, or consent of undergraduate director.

019:140 Legal Issues in Mass Communication
Issues affecting the media: freedom of expression, libel, privacy, access to information, protection of news sources, free press/fair trial, copyright, government regulation of broadcasting. Prerequisite: junior standing or consent of undergraduate director.

019:141 Classic and Contemporary Sports Writing
Critical reading of sports reportage, including historical and current examples; social and cultural preoccupations and problems viewed through the prism of sports journalism.

019:142 Public Relations Case Studies
Public relations concepts applied to analysis of public relations situations; development of solutions for public relations problems and opportunities. Prerequisite: 019:096.

019:150 Visual Communication
History of modern visual communication from a cultural perspective; visual form, composition, spatial representation, color and other topics; in-depth study of selected artists, designers, photographers.

019:151 Communication Research Methods
Fundamentals of scientific inquiry in the study of communication and mass communication behavior; language, concepts, procedures, application of behavioral research methods; field and experimental approaches.

019:152 History of Mass Communication in the U.S.
Historical analysis of professional practices. Prerequisite: 019:091 or consent of instructor.

019:155 Critical Issues in Mass Media
Critical issues related to the role and significance of mass media in contemporary society; content of the media, content's consequences for individuals and social groups.

019:156 Comparative Communication Systems
Culture and communication as central to examining media in different social and political settings; emphasis on contemporary problems.

019:158 News-Editorial Problems
Current issues in journalism, editing strategies; emphasis on press performance and practical problems journalists confront in their work.

019:159 Elections and the Media
Relationship between political campaigns and mass media; critical evaluation of nature, role, function of media political coverage.

019:160 Media and Health
Potential and limits of mass media's ability to educate the public about health; research and theory on the influence of information and entertainment media; theories, models, assumptions of mass communication in relation to public health issues. Same as 172:140.

019:161 Law, Media, and Current Issues
Current topics in communication law. Prerequisite: 019:140 or consent of instructor.

019:164 Images and Society
Development and uses of photography, film, and television as technologies of reproduction in contemporary culture.

019:165 African Americans and the Media
GE: Cultural Diversity. Same as 129:122.

019:166 Communication Technology and Society
Implications and effects of computer-based forms of communication, especially the Internet, for journalists, the media audience, and society at large.
019:167 Gender and Mass Media
Media images and representations of the body in terms of gender; impact on people, society; media and body image, sexuality, gender roles, gender and power, race, ethnicity, class, age; critical analysis of mediated images.

019:168 Journalism Ethics
Application of ethical principles in journalistic decision making; consideration of potentially conflicting values, loyalties, and goals that force professional journalists to make difficult choices.

019:169 Introductory Topics in Mass Communication
Focus on particular area, issue, approach, or body of knowledge; may include international media, media criticism, new technologies, history of documentary photography, literary journalism, media management. Repeatable.

019:171 Advanced Reporting and Writing
Project journalism; extended magazine pieces, explanatory/investigative journalism, series for newspapers, or task-force projects by entire class on a major issue, with goal of publication. Repeatable. Prerequisites: 019:098, one course from 019:120 - 019:129, and journalism major; or consent of undergraduate director.

019:172 Advanced Photojournalism
Photojournalism skills; may include documentary photography, advanced photojournalism methods and techniques. Repeatable. Prerequisite: 019:132 or consent of instructor.

019:173 Advanced Media Workshop
Journalism and mass communication skills; may include editing, broadcasting, design, multimedia. Repeatable. Prerequisites: 019:098, one course from 019:120 - 019:138, and journalism major; or consent of undergraduate director.

019:174 Advanced Television News
Advanced training and experience in producing, writing, and reporting television news packages and newscasts; emphasis on meeting professional standards. Repeatable. Prerequisites: 019:098, 019:123, 019:134, and journalism major; or consent of undergraduate director.

019:175 Advanced Public Relations Writing
Case-based study of corporate public relations practice; globalization issues, branding and integrated communication, crisis management. Prerequisites: 019:096, 019:098, 019:124, and journalism major; or consent of undergraduate director.

019:176 Visual Storytelling
Experience with journalistic storytelling techniques, generating story ideas, researching, writing, producing, editing, and critiquing documentary features and other visual narratives; use of digital video and archival material to produce visual narrative pieces for broadcast and other media platforms. Prerequisites: 019:098, 019:123, 019:134, and journalism major; or consent of undergraduate director.

019:177 Convergence Journalism
Use of multiple technologies for journalistic storytelling across media platforms, such as print, television, and Internet. Prerequisites: 019:098, 019:138, and journalism major; or consent of undergraduate director.

019:178 Iowa Journalist
Experience in photojournalism and desktop publishing software consistent with real-world media and public relations objectives; students write, edit, design, and produce Iowa Journalist magazine. Prerequisites: 019:098, one course from 019:120 - 019:139, and journalism major; or consent of undergraduate director.

019:180 Special Projects in Mass Communication
Research and readings to fit needs, interests of students. Prerequisite: consent of instructor.

019:181 Readings in Communication and Mass Communication
Focus on a problem or issue. Prerequisite: consent of instructor.

019:182 Topics in Mass Communication
019:190 Honors Readings
Topic in journalism or mass communication, chosen by student. Repeatable. Prerequisites: honors standing and consent of instructor.

019:191 Honors Project
Independent research or project for honors students. Prerequisites: honors standing and consent of instructor.

019:192 Advanced Topics in Mass Communication
An area, issue, approach, or body of knowledge (globalization and news, critical issues in mass media, literary journalism, and so forth).

Primarily for Graduate Students

019:220 Masters Seminar
Theoretical or methodological problems in mass communication. Repeatable.

019:225 Contemporary Problems in Journalism
Current issues in journalism and mass communication in the United States and the world.

019:226 Master's Advanced Reporting and Writing
Writing workshop for new M.A. professional journalism emphasis students.

019:229 Master's Media Project
Group project on topic chosen by students and instructor; research, investigation, and dissemination of findings in several media formats; advanced writing, visual, broadcast, or multimedia interest area.

019:231 Media Communication Theory I
Introduction to theory used by communication scholars.

019:232 Media Communication Theory II
Continuation of 019:231; social scientific theories.

019:235 Media Communication Research Methods I
Interpretive media studies research methods that involve field observation, interviews, textual analysis; use of contemporary, historical, legal resources.

019:236 Media Communication Research Methods II
Journalism and media communication research methods that involve collection of quantifiable data, including surveys, content analyses, experiments.

019:252 Social Meanings of News
How concept of news and news work has been studied in occupational, organizational, social, cultural contexts.

019:254 Communication and Change
Diverse perspectives on changing communication forms and their implications for media and society; theoretical and methodological approaches to research involving innovation.

019:255 Problems in International Communication
Representative topics: communication systems in national development and globalization; international and cross-cultural communication structure and theory; human rights; images, values; mass persuasion; laws, agreements; information channels, content, flow, effects; censorship, language, literacy.

019:256 Gender and Mass Communication
Approaches to the study of gender and communication; topics vary.

019:259 Theory of Popular Culture
Major theoretical notions about popular culture and its intersection with the mass media.

**019:265 Approaches to Teaching**  
Institutional and disciplinary issues that influence the journalism/mass communication classroom, philosophies of teaching, and use of teaching strategies, techniques, and classroom technologies; for students planning to work in academia.

**019:279 Mass Communication Seminar**  
Readings, research.

**019:280 Masters Tutorial**  
Topics in communication and mass communication inquiry. Prerequisite: consent of instructor.

**019:281 Masters Practicum**  
Research, readings, projects to fit needs, interests of students. Prerequisite: consent of instructor.

**019:289 Masters Research**  
Independent research for projects, theses. Repeatable. Prerequisites: consent of sponsoring faculty member, director of graduate studies, and instructor.

**019:320 Ph.D. Seminar**  
Forum on theoretical or methodological problems in mass communication. Repeatable. Prerequisite: consent of instructor.

**019:331 Advanced Communication Theory**  
Topics vary. Repeatable. Prerequisites: 019:231 and 019:232, or consent of instructor.

**019:332 Advanced Research Methods**  
Topics vary. Repeatable. Prerequisites: 019:235 and 019:236, or equivalents.

**019:333 Seminar in Media Communication**  
Topics vary. Repeatable.

**019:380 Ph.D. Tutorial**  
Communication and mass communication inquiry. Prerequisite: consent of instructor.

**019:381 Ph.D. Research Practicum**  
Conceptualization and execution of research projects. Prerequisite: consent of instructor.

**019:399 Dissertation**  
Repeatable.
Latin American Studies

Director: Kristine Fitch (Communication Studies)
Undergraduate nondegree programs: Certificate, Minor in Latin American Studies
Web site: http://intl-programs.uiowa.edu/academic/lasp/index.shtml

The Latin American Studies Program (LASP) is interdisciplinary, focusing on the history, politics, social organization, economy, geography, music, religion, art, and literature of Central and South America, Mexico, and the Caribbean. Faculty members from across the College of Liberal Arts and Sciences participate in the Latin American Studies Program as affiliated faculty members. Other University of Iowa faculty members occasionally offer courses and participate in the program’s research, study, and interdisciplinary activities.

The Latin American Studies Program prepares students for graduate study or for Latin America-related careers in business, communications, government, bilingual/bicultural education, secondary teaching, community organizing, and international work.

In addition to its instructional activity, LASP sponsors a wide variety of activities, brings scholars of Latin America to campus, and fosters institutional linkages.

Undergraduate Programs

The program offers the Certificate in Latin American Studies and a minor in Latin American studies. The certificate or minor may be earned in conjunction with a major in international studies, or it may be combined with study in a number of other programs, including majors in anthropology, history, political science, and Spanish and Portuguese; minors in any of these disciplines; or the Certificate in International Business. All students plan their programs in close cooperation with Latin American studies advisors.

Certificate

The Certificate in Latin American Studies requires a minimum of 24 s.h. in courses chosen from the list of LASP-approved courses (see "Approved LASP Courses" below). Students must maintain a g.p.a. of at least 2.00 in the certificate. Courses must include the following.

130:070 Introduction to Latin American Studies 3 s.h.
130:176 Latin American Studies Seminar 3 s.h.
At least 6 s.h. in each of two or more of the following departments: anthropology, history, political science, Spanish and Portuguese 12 s.h.
Four semesters (or equivalent) of Spanish or Portuguese language course work

LASP-approved courses that apply toward the student's major also may be applied toward the LASP certificate.

Courses applied toward the LASP certificate may be used to complete the College of Liberal Arts and Sciences General Education Program or the requirements for a major or a minor. The certificate is awarded only upon completion of a bachelor's degree. Holders of Iowa bachelor's degrees may return to complete the requirements for a certificate. A student may not be awarded both a minor and a certificate in Latin American studies.

Minor

The minor in Latin American studies requires a minimum of 15 s.h. in Latin-American studies-related courses, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, 100-level courses are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Courses for the minor should be chosen from approved courses (see "Approved LASP Courses" below). Because the Latin American studies minor is interdisciplinary, students majoring in anthropology, history, political science, or Spanish and Portuguese may not count more than 6 s.h. from courses in their major department toward the minor. Students are strongly encouraged to take either or both of the following.

130:070 Introduction to Latin American Studies 3 s.h.
130:176 Latin American Studies Seminar 3 s.h.
Courses Approved for LASP

The following courses are approved for the Certificate in Latin American Studies and for the minor. Courses that are not listed here but that are concerned in part with Latin America sometimes may be used as electives to satisfy requirements for the certificate or the minor; see "Rotating Topics" below and consult the LASP director.

**ANTHROPOLOGY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>113:131</td>
<td>Latin American Economy and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:163</td>
<td>Archaeology of Mesoamerica</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:166</td>
<td>The Aztecs, Their Predecessors, and Their Contemporaries</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**ART**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:105</td>
<td>Art of Pre-Columbian America</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**CINEMA AND COMPARATIVE LITERATURE**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>048:024</td>
<td>Introduction to Latin American Film</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>048:178</td>
<td>Topics in Latin American Cinema</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**COMMUNICATION STUDIES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>036:152</td>
<td>Latin American Media</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**ENGLISH**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>008:133</td>
<td>Inter-American Studies (when content is Latin American)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**HISTORY**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16W:106</td>
<td>Society and Revolution in Cuba</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:107</td>
<td>History of Mexico</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:110</td>
<td>Topics in Latin American History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:111</td>
<td>Colonial Latin America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:112</td>
<td>Introduction to Modern Latin America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:114</td>
<td>Latin America and the U.S.: The Historical Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:115</td>
<td>Latin American Revolution</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**INTERNATIONAL STUDIES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>187:070/035:070/038:070/130:070</td>
<td>Introduction to Latin American Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>187:142</td>
<td>Introduction to Caribbean Studies</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**LATIN AMERICAN STUDIES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>130:070</td>
<td>Introduction to Latin American Studies (required for certificate students, recommended for minors)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>130:105</td>
<td>Independent Study</td>
<td>arr.</td>
</tr>
<tr>
<td>130:176</td>
<td>Latin American Studies Seminar (required for certificate students, recommended for minors)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**MUSIC**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:104</td>
<td>Music of Latin America and the Caribbean</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:163</td>
<td>Steel Band</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
POLITICAL SCIENCE

030:144 Latin American Politics 3 s.h.
030:145 Latin American Political Parties 3 s.h.

PORTUGUESE

038:020 Contemporary Brazilian Narrative 3 s.h.
038:070/130:070/035:070/187:070 Introduction to Latin American Studies 3 s.h.
038:077 Brazil: The Erotic/Exotic Lure 3 s.h.
038:105 Brazilian Literature Before 1900 3 s.h.
038:106 Brazilian Literature After 1900 3 s.h.
038:112 Topics in Luso-Brazilian Literature (when topic is Latin American) 3 s.h.
038:115 Writing Brazil in the U.S. 3 s.h.
038:120 Topics in Luso-Brazilian Culture (when topic is Latin American) 3 s.h.

SPANISH

035:020 Contemporary Spanish American Narrative 3 s.h.
035:070/187:070/130:070/038:070 Introduction to Latin American Studies 3 s.h.
035:111 Readings in Spanish American Literature and Culture 3 s.h.
035:113 Screening Latin America 3 s.h.
035:130 Spanish American Civilization 3 s.h.
035:131 Contemporary Spanish American Fiction 3 s.h.
035:132 Spanish American Poetry 3 s.h.
035:134 Spanish American Short Story 3 s.h.
035:136 Culture and Language in the Andes 3 s.h.
035:140 Spanish American Literature of Fantasy 3 s.h.
035:142/187:142 Introduction to Caribbean Studies 3 s.h.
035:144/131:162 Latin American Women Writers 3 s.h.
035:145 Latin America Cinema 3 s.h.
035:171 Pan-Caribbean Literary Currents 3 s.h.
035:173 Colonial Spanish American Literature 3 s.h.
035:175 Cultural Identity in Caribbean Literature 3 s.h.
035:191/048:178 Topics in Latin American Cinema 3 s.h.

Rotating Topics

With prior approval, students may use these courses to satisfy requirements for the Certificate in Latin American Studies or for the minor when the course topic or focus is Latin America.

008:098 Honors Proseminar 4 s.h.
16W:051 Colloquium for History Majors (World) 3 s.h.
048:112 Proseminar in Cinema and Culture 1-2 s.h.
035:148 Topics in Cinema, Literature, and Society 3 s.h.
035:192 Topics in Film Studies 3 s.h.
035:195 Senior Seminar 3 s.h.
113:109 Literature and Anthropology 3 s.h.

Study Abroad

It is highly recommended, though not required, that students have an in-depth Latin American cultural experience, usually through study abroad, before completing their undergraduate requirements.

In cooperation with the Office for Study Abroad, LASP faculty members facilitate student participation in programs in
many different Latin American countries. Programs range from intensive language study to group programs with a special focus. University of Iowa-sponsored study abroad programs include summer programs with Universidad de Guanajuato in Mexico, Universidad de los Andes in Venezuela, and a health and nutrition program in Pontificia Universidad Católica Madre y Maestra in the Dominican Republic.

University of Iowa students may enroll in programs in Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Honduras, Mexico, and Uruguay. The University of Iowa cosponsors these programs through various consortiums.

Study abroad courses may be counted toward requirements for the certificate and the minor, subject to prior approval by the LASP director.

Financial Support

Students are encouraged to apply for a Stanley Undergraduate Scholarship for International Research/Fieldwork through University of Iowa International Programs. The scholarships are awarded to outstanding University of Iowa undergraduates who, in close consultation with a faculty member, propose well-conceived, small-scale research or fieldwork projects that require travel abroad. Students may conduct projects while participating in a study abroad program and may combine the scholarship with other awards and financial assistance. For information regarding other scholarships, contact LASP advisors, International Programs staff, and the LASP director.

Activities

In addition to its instructional activity, LASP organizes a range of public programming activities each semester, including film series, photography and art exhibits, conferences, roundtable discussions, and lectures. Recent events have included an international conference on contemporary Cuba and speakers on cinema, indigenous movements, human rights, and art.

Latin American Studies Courses

130:070 Introduction to Latin American Studies 3 s.h.
Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as 035:070, 038:070, 187:070.

130:105 Independent Study arr.

130:176 Latin American Studies Seminar 3 s.h.
Leisure plays an important role in our lives. The Leisure Studies Program contributes to the education of students in the College of Liberal Arts and Sciences by providing opportunities to study the phenomenon of leisure.

The program offers courses that help students learn how to use leisure time to enhance the quality of their lives. Several leisure studies courses may be used by students in all liberal arts and sciences majors to fulfill requirements of the General Education Program.

Leisure studies also offers undergraduate and graduate degree programs that prepare students for professional careers in the expanding fields of therapeutic recreation, child life, and recreational sport management. These degree programs prepare professionals to work in community, commercial, campus, and health care settings. The populations served by recreation professionals include the general public; students, colleges, and universities; children; and persons with disabilities or chronic conditions.

Undergraduate Programs

The program offers a Bachelor of Science in leisure studies with two tracks: therapeutic recreation and child life. It also offers a minor in leisure studies.

Bachelor of Science

The Bachelor of Science in leisure studies requires a minimum of 120 s.h., including work for the major, which varies by track. The therapeutic recreation track requires 56 s.h. of work for the major (38 s.h. in leisure studies courses and 18 s.h. of supporting course work from other departments). The child life track requires 46 s.h. of work for the major (34 s.h. in leisure studies courses and 12 s.h. of supporting course work from other departments).

Students also must complete the College of Liberal Arts and Sciences General Education Program.

Students may indicate their interest in the leisure studies major, with either track (therapeutic recreation or child life), when they are admitted to The University of Iowa or any time after that. But students must apply and be admitted to the major. Admission requirements for each track are listed under "Therapeutic Recreation Track" and "Child Life Track" below.

Therapeutic Recreation Track

Therapeutic recreation is a health-oriented field that involves providing recreation programs designed to improve or maintain the physical, emotional, mental, and social functioning of patients and consumers. Therapeutic recreation services involve a continuum of care that includes treatment using recreation activities to improve functional abilities; leisure education that helps individuals acquire skills, knowledge, and attitudes that facilitate an independent lifestyle; and recreation that uses activities to enhance health, growth, development, and independence through intrinsically rewarding leisure behavior.

Therapeutic recreation professionals are commonly employed in settings such as skilled nursing facilities, community recreation departments, state and community mental health institutions, general hospitals, physical rehabilitation centers, special recreation districts, correctional facilities, senior citizens’ community-based programs, facilities for the mentally delayed, facilities for the emotionally disturbed, and substance-abuse programs.

Students must apply for admission to the leisure studies major. Admission requirements include completion of 24 s.h. at The University of Iowa (or 12 s.h. for transfer students), including completion of the prerequisite course work for the student's track (see below). Applicants must have a g.p.a. of at least 2.50 for all University of Iowa course work and a cumulative g.p.a. of at least 2.50; students with a University of Iowa or cumulative g.p.a. lower than 2.50 may apply for exceptional admission.

Admission requirements for the therapeutic recreation track include completion of the following prerequisite course work (12-14 s.h.).

Both of these:
027:053 Human Anatomy 3 s.h.
031:001 Elementary Psychology (or an equivalent or more advanced course addressing the same content areas) 3 s.h.

One of these:

07P:025 Elementary Statistics and Inference 3 s.h.
07P:143 Introduction to Statistical Methods 3 s.h.
22M:015 Mathematics for the Biological Sciences 4 s.h.
22M:016 Calculus for the Biological Sciences 4 s.h.
22S:002 Statistics and Society 3 s.h.
22S:008 Statistics for Business 4 s.h.
22S:025 Elementary Statistics and Inference 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.

One of these:

034:001 Introduction to Sociology Principles 3-4 s.h.
034:020 Principles of Social Psychology 3-4 s.h.

Application forms are available on the Leisure Studies Program web site. Completed applications for the major with therapeutic recreation track must be submitted by October 15 for admission the following spring semester or by March 15 for admission the following fall semester.

The major in leisure studies with therapeutic recreation track requires the following course work.

Therapeutic Recreation: Foundation

All of these (25 s.h.):

169:060 Leisure in Contemporary Society 3 s.h.
169:061 Recreation Leadership and Programming 4 s.h.
169:150 Recreation Administration 3 s.h.
169:160 Introduction to Therapeutic Recreation 3 s.h.
169:161 Assessment and Evaluation in Therapeutic Recreation 3 s.h.
169:162 Therapeutic Recreation: Clientele 3 s.h.
169:163 Concepts and Issues in Therapeutic Recreation 3 s.h.
169:164 Therapeutic Recreation: Rehabilitation 3 s.h.

Therapeutic Recreation: Supporting Electives

Students must complete 18 s.h. of supporting elective course work, as follows.

031:063 Abnormal Psychology: Health Professions 3 s.h.
or
031:163 Abnormal Psychology 3 s.h.

027:053 Human Anatomy 3 s.h.
096:030 Human Development and Behavior 3 s.h.
Courses in human services (e.g., aging studies, psychology, sociology, social work, special education, counselor education) 9 s.h.

Therapeutic Recreation: Internship

Both of these (13 s.h.):

169:190 Preinternship Seminar 1 s.h.
169:191 Internship 12 s.h.
Child Life Track

Child life specialists are professionals with expertise in child development who advance effective coping through recreation, preparation for medical procedures and operations, patient and family education, and self-expression activities. Child life specialists provide services to support families and to promote children's mastery of varied experiences, particularly children's health care events. They may provide care to children's families by assisting in accurate information processing and helping family members and other caregivers. Child life specialists also help educate other medical staff and community members regarding issues and needs of children involved in health care events or other stressful experiences. For more information about the profession, visit Child Life Council.

Students must apply for admission to the leisure studies major. Admission requirements include completion of 24 s.h. at The University of Iowa (or 12 s.h. for transfer students), including completion of the prerequisite course work for the student's track (see below). Applicants must have a g.p.a. of at least 2.50 for all University of Iowa course work and a cumulative g.p.a. of at least 2.50; students with a University of Iowa or cumulative g.p.a. lower than 2.50 may apply for exceptional admission.

Admission requirements for the child life track include completion of the following prerequisite course work (15-16 s.h.).

One of these:
027:053 Human Anatomy 3 s.h.
060:110 Principles of Human Anatomy 3 s.h.

All of these:
031:001 Elementary Psychology 3 s.h.
034:001 Introduction to Sociology Principles 3-4 s.h.
096:030 Human Development and Behavior 3 s.h.
169:070 Perspectives on Leisure and Play 3 s.h.

Application forms are available on the Leisure Studies Program web site. Completed applications for the major with therapeutic recreation track must be submitted by March 15 for admission the following fall semester (students may enter the child life track only in fall).

The major in leisure studies with child life track requires the following course work.

Child Life: Foundation

All of these (21 s.h.):
169:061 Recreation Leadership and Programming 4 s.h.
169:077 Introduction to Child Life 3 s.h.
169:160 Introduction to Therapeutic Recreation 3 s.h.
169:162 Therapeutic Recreation: Clientele 3 s.h.
169:165 Child Life: Methods and Materials 3 s.h.
169:166 Child Life: Seminar 3 s.h.
169:167 Child Life Practicum (taken twice) 2 s.h.

Child Life: Supporting Electives

Students must complete 12 s.h. of supporting elective course work, as follows. Other supporting courses may be added with consent of the student's advisor.

031:041 Loss and Trauma 3 s.h.
034:061 The American Family 3 s.h.
20E:103 Medical and Technical Terminology 2 s.h.
07E:114 Parent-Child Relationships 3 s.h.
07U:140 Characteristics of Disabilities 3 s.h.
07C:145 Marriage and Family Interaction 3 s.h.
07U:190 Interdisciplinary Issues in Disabilities 1-3 s.h.
07C:199 Counseling for Related Professions 3 s.h.
Child Life: Internship

Both of these (13 s.h.):

169:190 Preinternship Seminar 1 s.h.
169:192 Child Life Internship 12 s.h.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the leisure studies major. Students should work with their advisors to develop an individual graduation plan.

Honors

The honors program is designed for superior students. It gives participants some research experience and a perspective on some aspects of graduate study. To be eligible for honors, students must maintain a cumulative University of Iowa g.p.a. of at least 3.33. For honors program application forms, contact the Leisure Studies Program.

To qualify for a degree with honors in leisure studies, students must successfully complete 169:194 Honors Readings and 169:195 Honors Problems, for which they must complete a reading or research project under the supervision of a leisure studies faculty member and write a paper summarizing the project's results. Honor students also must maintain a cumulative University of Iowa g.p.a. of at least 3.33 throughout the rest of their degree work.

Contact the University of Iowa Honors Program for more information about honors study at Iowa.

Minor

The minor in leisure studies requires a minimum of 15 s.h. in leisure studies courses, including 12 s.h. in 100-level courses at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students choose courses according to their interests and the recommendations of the leisure studies coordinator.

Graduate Program

The program offers a Master of Arts, with and without thesis, in leisure studies. Undergraduate preparation in leisure studies is not required for successful completion of the graduate program; students from diverse backgrounds are encouraged to apply. However, students may need to fulfill prerequisites specific to their specialization areas.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Master of Arts

The Master of Arts in leisure studies requires a minimum of 33 s.h. of graduate credit with thesis, and 36 s.h. of graduate credit without thesis. Students choose one of two specialization areas: therapeutic recreation or recreational sport management. All M.A. students must complete a common group of core courses and work in their specialization area.

CORE REQUIREMENTS

All M.A. students must take these courses.

07P:143 Introduction to Statistical Methods 3 s.h.
169:200 Historical and Philosophical Perspectives on Leisure 3 s.h.
169:205 Research Methods and Leisure Behavior 3 s.h.
169:273 Work and Leisure in American Culture 3 s.h.

Therapeutic Recreation Specialization

The therapeutic recreation specialization prepares students to meet the challenges of outpatient- and community-based health care service delivery. The program stresses research and business skills that will enable graduates to find the best jobs in the field.

Therapeutic recreation specialists are increasingly called upon to deliver preventive outpatient services, such as
programs designed to prevent secondary impairments in persons with disabilities (e.g., arthritis exercise to manage pain, fall prevention for older adults); education for individuals with negative lifestyle habits (e.g., smoking, substance abuse); programs designed to restore meaning and purpose to life following traumatic events (e.g., following a spinal cord injury); and initiatives to help communities and businesses make services accessible to persons with disabilities.

Iowa's therapeutic recreation program emphasizes business skills and innovation in delivery of services. Economics and Financing (169:252) and classes in entrepreneurship and new business formation prepare students to enter the workforce ready to build therapeutic recreation businesses that are self-supporting or profitable.

Students also acquire research skills that they can apply directly to therapeutic recreation practice, for example, to assess the effectiveness of specific interventions or the demand for varied services in a community.

In addition to the M.A. common core requirements (above), therapeutic recreation specialization students must complete the following.

- **169:163** Concepts and Issues in Therapeutic Recreation 3 s.h.
- **169:252** Economics and Financing 3 s.h.
- **169:262** Procedures in Therapeutic Recreation 3 s.h.
- Cognate area courses (entrepreneurship in therapeutic recreation) 10 s.h.

Nonthesis students take an additional 6 s.h. of electives. Thesis students complete 6 s.h. of 169:398 M.A. Thesis.

Therapeutic recreation students must complete a practicum (169:289 Graduate Practicum in Therapeutic Recreation) to sit for the national certification examination.

**Recreational Sport Management Specialization**

The recreational sport management specialization prepares students for positions in public and private recreation and sport management. Students typically find employment in community or municipal recreation programs, campus recreation programs, or commercial recreation and sport operations.

In addition to the M.A. common core requirements (above), recreational sports management specialization students must complete the following.

- **169:250** Seminar in Recreation Management 3 s.h.
- **169:251** Risk Management 3 s.h.
- **169:252** Economics and Financing 3 s.h.
- Cognate area courses (business, communications, or cultural studies) 6-9 s.h.

Nonthesis students take an additional 6 s.h. of electives. Thesis students complete 6 s.h. of 169:398 M.A. Thesis.

**Internships**

Internships, available in several areas, are strongly recommended for graduate students.

**Assistantships**

The program offers a limited number of teaching assistantships; applications should be made directly to the leisure studies academic coordinator. Teaching assistants support General Education Program courses offered by the Leisure Studies Program.

**Leisure Studies Courses**

- **169:040** The Good Society 3 s.h.
  
  Critiques of the existing social order, articulation of models of a good society with associated conceptions of the good life. GE: Humanities. Same as 033:040.

- **169:045** Health for Living 3 s.h.
  
  Personal health strategies; focus on disease prevention, wellness. GE: Health and Physical Activity.

- **169:050** Making Choices: Interdisciplinary Perspectives 3 s.h.
  
  GE: Humanities. Same as 033:050.

- **169:060** Leisure in Contemporary Society 3 s.h.
  
  Basic philosophical, historical, scientific foundations and developments; function, settings of organized recreation.
169:061 Recreation Leadership and Programming 3 s.h.
Leadership principles, techniques; programming techniques.

169:070 Perspectives on Leisure and Play 3 s.h.
Relationships between leisure and economics, sociology, other social sciences; effect of leisure on individual and group behavior; antecedents, motives, consequences of leisure behavior. GE: Social Sciences.

169:072 Leisure and the Liberal Arts 3 s.h.
Integration of the ideal of a liberal education with worthy, meaningful use of free time in contemporary society; classic writings in the humanities. GE: Humanities.

169:076 Culture and Community in Human Services 3 s.h.
Roles played by culture and community in human services; aspects of culture and community-based perspectives, including race, ethnicity, gender, class, sexuality, religion; disproportionate influence that particular cultures and communities exert on the structures of society.

169:077 Introduction to Child Life 3 s.h.
Orientation to the field of child life services including services for hospitalized children and their families.

169:080 Introduction to Place Studies 3 s.h.
Same as 033:080.

169:108 Basic Aspects of Aging 3 s.h.
Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Prerequisites: (for 042:108) 031:001 or 034:001, and sophomore or higher standing. GE: Social Sciences. Same as 042:108, 096:108, 153:108.

169:142 Health Promotion in the Workplace Setting 3 s.h.
Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and workplace (targeted) health promotion programs.

169:146 Health Promotion for Older Adults 3 s.h.
Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing the decline caused by chronic conditions to extend independent, rewarding lives. Same as 096:146, 153:146.

169:148 Personal Training Management 3 s.h.
Basics of personal training, including establishing a personal training business, screening, and assessing clients; current issues and certifications.

169:150 Recreation Administration 3 s.h.
Personnel, finance, budgets, liability, marketing.

169:151 Liability in Recreation and Sport 3 s.h.
Unintentional torts (negligence), civil liability, and criminal liability in recreation and sport settings; focus on community/commercial recreation and campus recreation settings.

169:152 Park and Recreation Facility Management 3 s.h.
Facilities management, personnel assignment and evaluation, fee structures, maintenance, programming, compliance with regulations and standards.

169:153 Commercial Recreation Management 3 s.h.
Basic management skills for profit-based recreation and sport businesses; operations, business plans, organizational behavior, risk management, inventory, purchasing, marketing.

169:155 Camp Administration 3 s.h.
Basics of camp administration; risk management, programming, general standards set by the American Camping Association.

169:156 Design of Recreation Facilities 3 s.h.
Horticulture, floriculture, landscape design, agronomy, turf management; their relation to planning and design of recreation and park areas and facilities.

169:160 Introduction to Therapeutic Recreation 3 s.h.
Lifestyles and barriers faced by persons with disabilities; basic aspects of the therapeutic recreation profession; skills used to establish therapeutic relationship; techniques used with patients; theoretical and conceptual bases for practice.

169:161 Assessment and Evaluation in Therapeutic Recreation 3 s.h.
Basic assessment psychometrics (e.g., reliability), standardized instrumentation and data collection (e.g., observation, self-report), construction of instruments, data reduction. Prerequisite: 169:160.

169:162 Therapeutic Recreation: Clientele 3 s.h.
Developmental patterns of special populations; examination of specific interventions and research applied to specific cognitive, emotional, and physical impairments. Prerequisite: 169:160.

169:163 Concepts and Issues in Therapeutic Recreation 3 s.h.
Ethical, professional, and theoretical issues in delivery of therapeutic recreation services; impact of legislation, standards of practice, health care reform; application of research to practice and marketing services. Prerequisite: 169:160.

169:164 Therapeutic Recreation: Rehabilitation 3 s.h.
In-depth review of therapeutic recreation techniques used in clinical and community rehabilitation; opportunities to use techniques with patients. Prerequisite: 169:160.

169:165 Child Life: Methods and Materials 3 s.h.
Interventions unique to child life practice (e.g., pain management, coping, preoperative play, terminal illness). Prerequisite: 169:077.

169:166 Child Life: Seminar 3 s.h.

169:167 Child Life Practicum 1 s.h.
Experience observing and assisting child life staff members providing services to hospitalized children, under Certified Child Life Specialist supervision.

169:168 Aging and Leisure 3 s.h.
Status of the well elderly in relation to retirement issues, use of free time, and factors that support leisure activity; leisure services in long-term care. Same as 153:168.

169:190 Preinternship Seminar 1 s.h.
Orientation to the internship process. Prerequisite: 169:160.

169:191 Internship arr.
Practical field experience; direct leadership, program planning, administrative procedures. Prerequisites: 169:190 and consent of instructor.

169:192 Child Life Internship 12 s.h.

169:193 Independent Study arr.
Problem in a specific area. Prerequisite: consent of instructor.

169:194 Honors Readings arr.
Prerequisite: consent of instructor.

169:195 Honors Problems arr.
Prerequisite: consent of instructor.

169:200 Historical and Philosophical Perspectives on Leisure 3 s.h.
Historical and philosophical origins of leisure studies; historical issues related to leisure ideas, such as shorter hours, share-the-work, utopian vision of a better society.

169:205 **Research Methods and Leisure Behavior**  
3 s.h.  
The scientific process: research designs for experiments and surveys, questionnaire construction, sampling theory, basic data analysis.

169:250 **Seminar in Recreation Management**  
3 s.h.  
The sport/leisure industry and product characteristics of nonprofit, private/commercial, and public organizations; participant and spectator consumer behavior; fundamentals of market research in sport/leisure organizations.

169:251 **Risk Management**  
3 s.h.  
Legal knowledge necessary for effective management of sport, recreation, and physical activity programs, avoidance of legal problems; strategies for addressing issues such as right to participate, liability for injuries, risk management; legal statutes that govern sport, health, recreation organizations.

169:252 **Economics and Financing**  
3 s.h.  
Economic issues for sport/leisure services in nonprofit, private/commercial, and public sectors; strategic financial analysis for the nonfinancial manager; principles, issues in financing sport/leisure organizations.

169:262 **Procedures in Therapeutic Recreation**  
3 s.h.  
Current issues in the field; application of business and research principles to therapeutic recreation practice and program administration. Prerequisite: consent of instructor.

169:264 **Therapeutic Recreation: Services**  
3 s.h.  
Initiation, improvement, expansion of therapeutic recreation service for disabled persons; practice in program evaluation procedures; parallel practices in related fields. Prerequisite: consent of instructor.

169:273 **Work and Leisure in American Culture**  
3 s.h.  
Methods and insights of American studies and leisure studies applied to work/leisure relationship in American life; patterns and perceptions of work and leisure, leisure’s share and potential; changing American values.

169:289 **Graduate Practicum in Therapeutic Recreation**  
3-9 s.h.  

169:290 **Graduate Internship**  
3-9 s.h.  
Prerequisites: recreational sports management emphasis and consent of instructor.

169:291 **Problems**  
Prerequisite: consent of instructor.

169:299 **Graduate Research Problems**  
Prerequisite: consent of instructor.

169:301 **Research Colloquium in Leisure Studies**  
3 s.h.  
Current faculty research; individual work with faculty members on projects that will be presented in class.

169:398 **M.A. Thesis**  
1-6 s.h.  
Repeatable. Prerequisite: consent of instructor.
Linguistics is the scientific study of human languages, which are highly complex systems. Areas of study include word structure (morphology), speech sounds (phonetics) and their patterns of combination and contrast (phonology), sentence structure (syntax), and meaning relations (semantics).

Linguists study well-known and familiar languages, such as English, Spanish, Russian, and Chinese. They also study less well-known languages and even those languages about which little has been discovered. While human languages are different from one another in many ways, there are broad similarities among them, supporting the idea that the capacity for language is part of human cognitive functions.

The description of formal patterns of human language has a number of applications. Linguistics is connected to psychology and to speech and hearing, in studying how children learn language, how speakers process and interpret language, and how injuries and disorders affect both production and perception of speech. It is linked with anthropology and other social sciences in studying how language use relates to culture, region, class, and gender. Linguists and computer scientists collaborate to construct computational representations of syntax and semantics for processing natural languages.

Linguistics has important ties with instruction in foreign languages and in English as a second language. Studies of how languages are learned are based in part on analysis of the languages in question. They also are grounded strongly in theories of second language acquisition, which in turn are related to theories of how linguistic knowledge is represented in the mind.

People with linguistic training teach English as a second language and help clinicians retrain people with linguistic disabilities. Some help design school programs for minority groups or intelligence and achievement tests. Linguists also work in occupations related to law, the computer industry, and foreign languages.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in linguistics.

High scores on verbal, analytic, and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, students must be able to reason logically and explicitly and deal with formulas and abstract symbols. Depending on their vocational goals, prospective linguistics students should consider pursuing their studies either through the M.A. in linguistics with a professional focus or through the Ph.D., or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary and secondary education.

Bachelor of Arts

The Bachelor of Arts in linguistics requires a minimum of 120 s.h., including 24 s.h. of work for the major. The program prepares students to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of subspecialties enable students to tailor the program to their own interests.

The major requires the following course work.

103:100 Introduction to Linguistics 3 s.h.
103:110 Articulatory and Acoustic Phonetics 3 s.h.
103:111 Syntactic Analysis 3 s.h.
103:112 Phonological Analysis

A course in language history (e.g., 103:131 or 103:139)
or
A course in an old language (classical Greek, Latin, Old English, Sanskrit)

Electives chosen in consultation with a faculty advisor

Students must complete no fewer than 15 s.h. of requirements for the major at The University of Iowa, including 103:110 Articulatory and Acoustic Phonetics, 103:111 Syntactic Analysis, and 103:112 Phonological Analysis.

English Grammar (103:028) does not count toward the linguistics major.

Students must complete the College of Liberal Arts and Sciences General Education Program.

**TESL Emphasis**

As part of the major in linguistics, students may complete an emphasis in Teaching English as a Second Language (TESL). The TESL emphasis can prepare students to teach English to nonnative speakers abroad. It also is excellent preparation for graduate work in second language acquisition. TESL emphasis students complete the requirements for the linguistics major listed above, using the following course work to satisfy the electives requirement.

Both of these:

103:141 The Structure of English 3 s.h.
103:145 Methods of Teaching English as a Second Language 3 s.h.

One of these:

103:107 Practicum in Teaching English as a Second Language 3 s.h.
103:156 Child Language-Linguistic Perspectives 3 s.h.
103:161 Practical Phonetics 3 s.h.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** Introduction to Linguistics (103:100) and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** two more courses in the major and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** two more courses in the major

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

Members of the University of Iowa Honors Program may graduate with honors in linguistics by completing the major course work plus an honors thesis, which must be prepared in consultation with the student's academic advisor. Membership in the Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more
Minor

The minor in linguistics requires a minimum of 15 s.h. in linguistics courses, including at least 12 s.h. in University of Iowa courses numbered 103:100 Introduction to Linguistics and above. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Courses for the minor must include 103:100 Introduction to Linguistics, 103:110 Articulatory and Acoustic Phonetics, 103:111 Syntactic Analysis, and 103:112 Phonological Analysis.

Language for Nonmajors

Students may use the four-semester sequence in Swahili (103:125 Elementary Swahili I, 103:126 Elementary Swahili II, 103:127 Intermediate Swahili I, and 103:128 Intermediate Swahili II) to fulfill the College of Liberal Arts and Sciences General Education Program foreign language requirement. The sequences also satisfy requirements for certain undergraduate programs, for example, those in the African American Studies Program.

Joint B.A./M.A. with TESL Focus

The Department of Linguistics offers a joint Bachelor of Arts/Master of Arts for undergraduate majors planning to earn a master's degree in linguistics with a Teaching English as a Second Language (TESL) focus. B.A./M.A. students take selected graduate-level courses while still undergraduates and may count 12 s.h. of advanced course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.A., and they usually complete the M.A. one year later.

As part of the undergraduate major, B.A./M.A. students take 103:141 The Structure of English, a course in language history, 103:100 Introduction to Linguistics, and 103:110 Articulatory and Acoustic Phonetics.

They substitute some graduate-level course work for normal undergraduate requirements. Instead of taking 103:111 Syntactic Analysis to fulfill the B.A. syntax requirement, they take 103:201 Introduction to Syntax, the first course in the mandatory two-course syntax sequence for M.A. students. Instead of taking 103:112 Phonological Analysis to fulfill the B.A. phonology requirement, they take 103:203 Introduction to Phonology, the first in the graduate two-course phonology sequence.

In addition, 103:145 Methods of Teaching English as a Second Language and 103:202 Syntactic Theory count toward both degrees and typically are taken during the senior year.

To be admitted to the program, students must be working toward an undergraduate major in linguistics, must have completed at least 80 s.h. of undergraduate course work (typically by the end of their fifth semester), and must have a g.p.a. of at least 3.50.

Graduate Programs

The department offers a Master of Arts, with or without thesis, and a Doctor of Philosophy in linguistics.

The graduate programs emphasize theory and research. Students interested in nonuniversity careers also may take courses in applied linguistics and other fields, either in connection with doctoral work or as an option in the M.A. program.

Iowa's Department of Linguistics has particular strengths in second language acquisition (SLA), phonology, and syntax.

The curriculum in second language acquisition includes courses that provide an overview and analysis of current SLA research conducted within the generative framework, with emphasis on explaining the linguistic competence of second language learners in terms of universal grammar (UG), the innate language acquisition device. Work focuses on experimental research investigating the influence of the first language,
theories of UG access, and related topics.

The phonology curriculum emphasizes current theoretical perspectives, including optimality theory, and the collection, description, and interpretation of novel phonological and phonetic data. Courses feature extensive work in data analysis and problem solving, focusing on construction and evaluation of phonological theories, particularly in light of new empirical data.

The syntax curriculum includes the dual emphases of empirical and theoretical perspectives. It offers a variety of foundational courses that build analytic and argumentation skills, as well as specialized course work on current issues in syntactic theory. The courses consist of intensive work in problem solving. They combine discovery and description of new linguistic data with exploration of the implications of such facts in testing and constructing syntactic theories.

**Master of Arts**

The Master of Arts in linguistics requires a minimum of 30 s.h. of graduate credit with thesis, or 37 s.h. without thesis.

All students take a required set of core courses in phonology, syntax, and language acquisition. Thesis students also complete at least 8 s.h. of electives and earn up to 6 s.h. for the thesis. Nonthesis students also complete 15 s.h. of Department of Linguistics course work, which may include a 9 s.h. focus (e.g., teaching English as a second language). A student's advisor must approve all courses that count toward the degree.

A student with a linguistics background may waive up to 6 s.h. of course work if the department determines that he or she completed comparable work before enrolling in the program.

Comprehensive examinations cover phonology, syntax, and applied linguistics (for students who choose this option).

The required core courses are as follows.

103:110 Articulatory and Acoustic Phonetics 3 s.h.
103:200 Proseminar: Morphosyntax 1 s.h.
103:201 Introduction to Syntax 3 s.h.
103:202 Syntactic Theory 3 s.h.
103:203 Introduction to Phonology 3 s.h.
103:204 Phonological Theory 3 s.h.
103:211 Generative Second Language Acquisition 3 s.h.

One of these:

103:113 Linguistic Field Methods 3 s.h.
103:210 Linguistic Structures 3 s.h.
103:217 Language Universals Linguistic Typology 3 s.h.

**Doctor of Philosophy**

The Doctor of Philosophy in linguistics requires a minimum of 72 s.h. of graduate credit, or 73 s.h. for graduates of the M.A. nonthesis program. The highly selective program provides students with a strong foundation in theoretical linguistics and helps them develop the skills they will need to explore the close relationship between linguistics and related disciplines.

The Ph.D. core includes the following course work (total of 18 s.h.).

Two upper-level syntax courses numbered 103:212 Advanced Syntactic Theory or above
Two upper-level phonology courses numbered 103:214 Advanced Phonological Theory or above
At least two seminars
An approved specialty area of 18 s.h. also is required, and students must achieve proficiency in a foreign language, as specified by department regulations.

To pass the comprehensive examination for the Ph.D., a student must gain approval for two papers of publishable quality. One must be in phonology or syntax. The other should be in an area of the student's choosing and must be distinct from the area of the first paper.

An oral defense of the dissertation and three years in residence at The University of Iowa are required. In addition, all candidates are required to gain supervised experience in teaching and research.

**Admission**

Applicants to the graduate program in linguistics must complete an application form, submit GRE General Test scores, and have three letters of recommendation sent to the Department of Linguistics. Students whose first language is not English must submit Test of English as a Foreign Language (TOEFL) scores. Applications for admission should be submitted as early as possible for the following academic year.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Financial Support**

Fellowships, teaching assistantships, and research assistantships are available to qualified graduate students. Applications are due no later than March 1 for the following academic year; earlier submission is strongly encouraged.

Exceptionally well-qualified applicants may be eligible for a Presidential Graduate Fellowship. Individuals interested in being nominated for a presidential fellowship should submit all application materials by January 15 for the following academic year.

Applications for all awards are considered only for students whose application for admission is complete.

**English as a Second Language**

ESL instruction is offered in three distinct, but related, programs: the ESL credit classes, the Iowa Intensive English Program (IIEP), and the Teaching Assistant Preparation in English Program (TAPE). These programs meet the needs of students whose first language is not English. The ESL credit classes help students raise their English proficiency so they can complete a degree successfully. The IIEP provides intensive instruction for students who must raise their English proficiency to gain admission to a university or college. The TAPE program helps students improve their oral competence in English so they may assume classroom teaching responsibilities.

**ESL Credit Classes**

English as a Second Language Credit Classes bridge the gap between full-time language instruction and full-time academic work, serving students who score 530-599 (paper-based) or 71-100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). ESL courses are offered to increase proficiency in four skill areas: reading, writing, speaking, and listening. Courses also are offered in grammar and pronunciation. Each course carries 3 s.h. of credit, which undergraduates may count as elective credit toward graduation. Courses are taught by teaching assistants pursuing advanced degrees in linguistics.

Courses taken to meet the College of Liberal Arts and Sciences English proficiency requirement may not be taken P/N. ESL courses may not be taken S/U. All required ESL courses must be completed before registration in rhetoric courses. Once enrolled, students may not drop ESL courses.

**Iowa Intensive English Program (IIEP)**

The IIEP primarily serves students on conditional admission and persons who have not yet been admitted to
the University and who score below 530 (paper-based) or 71 (Internet-based) on the Test of English as a Foreign Language (TOEFL). The program offers intensive English instruction and a cultural, social, and academic orientation to the United States. Instruction emphasizes proficiency in spoken and written English, which is crucial to college and university work. Grammar and the basic language skills of writing, reading, listening comprehension, and speaking are taught each day at all levels, beginning through advanced.

Each student receives 20 hours of classroom instruction each week plus individual work in the language laboratory. Field trips and cultural and social experiences are an integral part of the program. Students enrolled in the IIEP have full access to all University facilities. The program welcomes international students preparing to enter universities and colleges as well as other adults who want to improve their English skills. Instruction is by full-time professional ESL instructors.

International students admitted to the IIEP receive a certificate of eligibility (Form I-20), which enables them to apply for a student visa at the nearest U.S. consulate or embassy. Application materials are available from the ESL Programs Office and on the Iowa Intensive English Program web site.

**Teaching Assistant Preparation in English (TAPE)**

The Teaching Assistant Preparation in English program (TAPE) is designed for graduate students whose first language is not English, who need additional work on English communication, and who will hold teaching assistantships while at The University of Iowa. Only students who need the program and who have sufficient competence in English to profit from it are eligible. TAPE courses are open to graduate students who have been evaluated for TA certification and to others if space is available. Students are taught by full-time professional ESL instructors.

**Foreign Language Instruction**

Instruction in Swahili is provided by native-speaking teachers through the department. Elementary and intermediate Swahili are taught every year. The classroom emphasis on oral communication skills is augmented by discussion of various aspects of the culture.

**Facilities**

The Department of Linguistics has two laboratories. One is equipped with 14 computer workstations for small group instruction, individual work, and student research in speech analysis, second language acquisition, computational linguistics, and other areas. The other has a soundproof booth connected to a computer with software for speech analysis. Remote terminals and personal computers are also available to students.

The departmental reading room, which contains a modest library, provides a common meeting place for faculty and students. Students have considerable influence on departmental affairs and enjoy a high degree of individual instruction.

**Linguistics Courses**

**Primarily for Undergraduates**

103:011 **Language and Society**  3 s.h.
Correlations between social and linguistic behavior; methods for discovering and describing socially significant language behavior; educational and political implications of findings. GE: Social Sciences.

103:013 **Language and Formal Reasoning**  3 s.h.
Semantics and sentence structure of English; word meanings, meaning connected to truth conditions, reasoning based on logical connectives and quantifiers, evaluation of valid and invalid arguments. GE: Quantitative or Formal Reasoning.

103:020 **Introduction to the Study of Language**  3 s.h.
Nontechnical introduction: classification of languages, writing systems, language and the brain, acquisition of first and second languages, bilingualism, animal communication, language and computing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>103:028</td>
<td>English Grammar</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Recognizing nouns, verbs, adverbs, adjectives,</td>
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<td>and other parts of speech; sentence analysis;</td>
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<td></td>
<td>subjects, objects; types of sentences;</td>
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<td></td>
<td>passives, relative clauses; for students with</td>
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<td></td>
<td>little or no background in English grammar study.</td>
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<td></td>
<td>Does not count toward the linguistics major.</td>
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<tr>
<td>103:029</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
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<td>Small discussion class taught by a faculty</td>
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<td>member; topics chosen by instructor; may</td>
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<td>include outside activities (e.g., films,</td>
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<td>lectures, performances, readings, visits to</td>
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<td>research facilities). Prerequisite: first- or</td>
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<td></td>
<td>second-semester standing.</td>
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<tr>
<td>103:035</td>
<td>English Words</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>English word formation, basic units of English</td>
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<td>vocabulary; vocabulary skill expansion; word</td>
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<td></td>
<td>structure.</td>
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<tr>
<td>103:045</td>
<td>Language Rights</td>
<td>3 s.h.</td>
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<tr>
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<td>Language minorities and linguistic human rights</td>
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<td>in the United States and worldwide; language</td>
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<td>and identity, culture, power; case studies of</td>
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<td>language rights deprivation.</td>
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<tr>
<td>103:055</td>
<td>Languages of the World</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Overview of structural similarities and differences in human language; survey of the world’s major language families; emphasis on sentence and word structure, sound systems, and modes of classification. GE: Social Sciences.</td>
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<tr>
<td>103:095</td>
<td>Research Practicum</td>
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<td>Individual participation in faculty research</td>
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<td>projects. Prerequisite: consent of instructor.</td>
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<tr>
<td>103:099</td>
<td>Special Project</td>
<td>arr.</td>
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</tbody>
</table>

For Undergraduate and Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>103:100</td>
<td>Introduction to Linguistics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to the study of human language:</td>
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<td></td>
<td>sounds and their contrasts and variation, words</td>
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<td></td>
<td>and meaningful subunits, sentence structure,</td>
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<td></td>
<td>historical change. Same as 08L:100, 113:100.</td>
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<tr>
<td>103:107</td>
<td>Practicum in Teaching English as a Second Language</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Practical experience in TESL, observation and</td>
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<td></td>
<td>participation in intensive English classes; design</td>
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<td>and teaching of ESL classes under supervision.</td>
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<td></td>
<td>Prerequisites: 103:145 and consent of instructor.</td>
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<td></td>
<td>Offered summer sessions.</td>
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<tr>
<td>103:110</td>
<td>Articulatory and Acoustic Phonetics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Production and transcription of sounds in</td>
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<td>human languages; physics of sound, computer</td>
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<td></td>
<td>analysis of speech sounds. Offered fall</td>
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<td></td>
<td>semesters. Same as 164:160.</td>
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<tr>
<td>103:111</td>
<td>Syntactic Analysis</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to sentence structures and basic</td>
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<td>abstract relations that characterize them,</td>
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<td>including word category, word order,</td>
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<td>hierarchical organization; problem sets from</td>
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<td>English and other languages as basis for</td>
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<td>discussion, analysis.</td>
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<td></td>
<td>Offered spring semesters. Prerequisite: 103:100.</td>
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<tr>
<td>103:112</td>
<td>Phonological Analysis</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to analysis of sound systems;</td>
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<td>generative phonological theory; practice in</td>
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<td>phonological analysis using data from a</td>
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<td></td>
<td>variety of languages. Offered spring semesters.</td>
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<td>Prerequisites: 103:100 and 103:110.</td>
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<td>103:113</td>
<td>Linguistic Field Methods</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Collection and analysis of primary linguistic</td>
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<td>data from unfamiliar language; methods of</td>
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<td>elicitation, theory, practical problems; extensive practice in eliciting data from a consultant.</td>
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<td>Prerequisites: 103:110, a course in syntax, and a</td>
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<td>course in phonology.</td>
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<td>103:115</td>
<td>Topics in Linguistics</td>
<td>3 s.h.</td>
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<td></td>
<td>Varied topics in linguistics; for undergraduates.</td>
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<td>Prerequisite: consent of instructor.</td>
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</tbody>
</table>
103:125 Elementary Swahili I  
GE: Foreign Language First Level Proficiency.

103:126 Elementary Swahili II  

103:127 Intermediate Swahili I  

103:128 Intermediate Swahili II  
GE: Foreign Language Fourth Level Proficiency.

103:129 Advanced Swahili  
Advanced speaking, listening, reading, and writing skills. Prerequisite: 103:128 or equivalent.

103:130 Intensive Conversational Swahili  
Extensive practice in production and comprehension of Swahili, primarily for students preparing to spend the summer in a Swahili-speaking area. Prerequisite: intermediate Swahili I or equivalent. Corequisite: 103:128.

103:131 History of the English Language  
Development of phonological and grammatical structure of English, from Old to Modern English; dialectal differentiation in English. Prerequisite: 103:100 or equivalent. Same as 08L:131.

103:132 Elementary Old English  
Reading knowledge of Old English; introduction to Anglo-Saxon literature and culture. English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 008:140.

103:139 Chinese Historical Phonology  
Phonology of Mandarin, other major Chinese dialect groups; reconstruction of the sound system of Middle and Old Chinese. Same as 039:139.

103:140 Introduction to Computational Linguistics  
Introduction to computational linguistics; focus on theory and practice of natural language processing and syntactic and semantic analysis. Same as 22C:146.

103:141 The Structure of English  
Descriptive analysis of English, including word and sentence structure; focus on relevance to teaching English as a second language. Offered fall semesters. Prerequisite: 103:111 or consent of instructor.

103:144 Introduction to Chinese Linguistics  
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as 039:144, 164:181.

103:145 Methods of Teaching English as a Second Language  
Observations of ESL and intensive English classes at the University; design and presentation of short lessons, text evaluation, demonstrations of innovative approaches of the last decade; materials. Offered spring semesters. Prerequisites: 103:110 and 103:141. Same as 164:163.

103:150 Language and Gender  
Gender-related language variation; current research on gender-specific linguistic forms and usage in the United States and other language communities; introduction to relevant principles of linguistic theory and analysis. GE: Cultural Diversity. Same as 113:173.

103:155 Morphology  
Lexicon and principles of word formation; principal processes of inflection, derivation, and compounding found in the world's languages; relation to phonology, syntax; practice in morphological analysis from a variety of languages. Prerequisite: 103:100.
103:156 Child Language-Linguistic Perspectives
Linguistic theory as applied to first-language learning, including acquisition of sounds, syntax and word meaning, acquisition strategies, properties of input, theories of first-language acquisition. Prerequisite: 103:100.

103:157 Linguistic Theory and Second Language Acquisition
Introduction of research results obtained by generative second language acquisition framework and their implications for classroom teaching methods; current views of language architecture; focus on inflectional morphology and linguistic interfaces, which have been proposed to be severe bottlenecks for acquisition; research findings on acquisition of syntax, phonology, semantics, linguistic pragmatics; pedagogical implications of these findings. Prerequisites: 103:111 and 103:112, or equivalents. Same as 164:157.

103:161 Practical Phonetics
Contemporary articulatory and acoustic research, including second-language acquisition, elicitation and computer analysis of primary linguistic data. Prerequisite: 103:110.

103:163 Philosophy of Language
Contemporary topics. Prerequisite: consent of instructor. Same as 026:189.

103:172 Psychology of Language
Theoretical, empirical investigations of linguistic behavior; behaviorist, rationalist models in context of formal linguistic structure and context of models of speech perception and production. Offered spring semesters. Prerequisite: 103:100 or consent of instructor. GE: Social Sciences. Same as 003:117.

103:175 Introduction to Semantics
Overview of meaning in natural language mapped onto lexical and syntactic structures; formal logical and set theory description; discussion of truth conditions, compositionality, presupposition, definiteness, quantification in natural language. Prerequisite: course in syntax or consent of instructor.

103:176 Language Development
Models of children’s language acquisition; child language/communication development from infancy through school age, in context of current developmental research. Offered spring semesters. Prerequisites: (for 003:118) 031:001 and 103:100 or consent of instructor for undergraduates; consent of instructor for graduate students. Prerequisite: (for 103:176) 103:100 or 103:172 or consent of instructor. GE: Social Sciences. Same as 003:118.

103:177 Basic Neuroscience for Speech and Hearing
Basic anatomy, physiology of central nervous system; emphasis on neural systems involved in normal and disordered communication. Offered fall semesters. Prerequisite: course in biology or zoology or physiology, or consent of instructor. Same as 003:116.

103:199 Special Projects
Theoretical and applied topics.

Primarily for Graduate Students

103:200 Proseminar: Morphosyntax
Basic morphological analysis of languages other than English; morphological markers of syntactic relations (morphosyntax), such as case/agreement, possession, switch reference and other inflectional marking. Corequisite: 103:201.

103:201 Introduction to Syntax
Methods and argumentation for formal analysis of sentence structure through induction from language data of central concepts and relations; hypothesis testing, empirical bases of theoretical concepts. Corequisite: 103:200. Same as 164:241.

103:202 Syntactic Theory
Current syntactic theory examined through analysis of data sets, readings in recent research; emphasis on argument construction, statement of formal principles. Offered spring semesters. Prerequisite: 103:201. Same as 164:242.
103:203 Introduction to Phonology
Analysis of sound systems, focus on early generative phonological theory; extensive practice in analysis using data from a variety of languages; linguistic argumentation. Prerequisite: 103:110. Same as 164:203.

103:204 Phonological Theory
Post-SPE phonological theory, including autosegmental phonology, feature geometry, the syllable, optimality theory. Prerequisite: 103:203. Same as 164:244.

103:205 Topics in Linguistic Theory
Varied topics in linguistic theory; for graduate students. Prerequisite: consent of instructor.

103:206 First Language Acquisition
Child language from a crosslinguistic perspective. Prerequisites: 103:110, and 103:141 or 103:201. Same as 164:245.

103:210 Linguistic Structures
Grammatical and/or phonological structure of a selected language or language family. Repeatable with different language. Prerequisite: consent of instructor.

103:211 Generative Second Language Acquisition
Overview of current second-language acquisition research in the generative linguistic framework; focus on characterizing second language learners' linguistic competence and how it is constrained by principles of universal grammar. Offered fall semesters. Prerequisites: 103:111 or 103:201, and 103:112 or 103:203. Same as 164:246.

103:212 Advanced Syntactic Theory
Recent developments in syntax; comparison of theories, argumentation, and uses of data. Repeatable. Same as 164:247.

103:214 Advanced Phonological Theory

103:216 Topics in Second Language Acquisition
Recent developments of selected issues in second language acquisition. Repeatable. Prerequisite: 103:211 or consent of instructor. Same as 164:249.

103:217 Language Universals Linguistic Typology
Proposed universal principles of linguistic structure; approaches to classification of languages on the basis of grammatical and phonological structure. Prerequisite: 103:201 or equivalent or consent of instructor.

103:218 Psycholinguistics
Theoretical, empirical issues in psycholinguistics; models demonstrating relation of formal language structure to psychological operations used in speech perception and production; laboratory emphasis on paradigmatic research in psycholinguistics. Offered fall semesters. Prerequisite: consent of instructor. Same as 003:218.

103:220 Seminar: Linguistic Anthropology
Fundamental concepts and methods employed in the anthropological study of language; principal areas of current research. Same as 113:271.

103:221 Seminar: Language and Gender
Role of language and discourse in cultural constructions of gender identities and relations, including domination and subordination; theoretical perspectives, methodological approaches that have shaped thought on the language/gender nexus. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 113:273.

103:230 Advanced Hearing Science and Speech Perception
Perception of speech and other sounds by human listeners, how these perceptual abilities relate to the physiology of the auditory system; perception of speech by hearing-impaired listeners through hearing aids or cochlear implants. Offered spring semesters. Prerequisite: (for 003:230) 003:113 or consent of instructor. Prerequisites: (for 103:230) background in phonetics, speech science, and hearing science; or consent of instructor. Same as 003:230.

103:231 History of the German Language
Same as 013:241.
**103:232 Special Topics in German Linguistics**

Repeatable. Same as 013:299, 164:299.

**103:262 Topics in Comparative Romance Linguistics**

Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 035:207, 164:262, 20E:201.

**103:300 Seminar: Spanish Linguistics**

Repeatable with different topics. Same as 035:300.

**103:312 Seminar: Problems in Linguistics**

Intensive study of theoretical and practical problems. Same as 164:342.

**103:390 Special Projects**

arr.

**103:400 Master's Thesis**

arr.

**103:450 Ph.D. Thesis**

arr.

**Special English Courses**

**ESL Credit Classes**

The following courses are for students whose first language is not English. Courses taken to meet the College of Liberal Arts and Sciences English proficiency requirement may not be taken P/N. English as a Second Language (ESL) courses may not be taken S/U. In order to enroll in ESL courses, undergraduates must score 530 (paper-based), 197 (computer-based), or 71 (Internet-based) or higher on the Test of English as a Foreign Language (TOEFL), or the equivalent; graduate students must score 550 (paper-based), 215 (computer-based), or 81 (Internet-based) or higher on TOEFL, or the equivalent. Consent of ESL coordinator is required for all courses.

**103:184 English as a Second Language: Conversation Skills**

Speaking skills for the U.S. academic setting and society; pronunciation, grammar, vocabulary; structured opportunity to develop fluency. Prerequisite: consent of ESL coordinator.

**103:185 English as a Second Language: Pronunciation and Oral Skills**

Development of skills appropriate to formal speaking; diagnosis and correction of persistent pronunciation problems; correct stress, intonation. Prerequisite: consent of ESL coordinator.

**103:186 English as a Second Language: Grammar**

English structure; troublesome grammar patterns. Prerequisite: consent of ESL coordinator.

**103:187 English as a Second Language: Writing**

Complex grammatical constructions, discourse considerations, formal vocabulary use expected of university students; organization styles, types of argumentation, analytic methods used in academic writing. Prerequisites: undergraduate standing and consent of ESL coordinator.

**103:188 English as a Second Language: Oral Skills for M.B.A. Students**

Improvement of M.B.A. students’ oral skills; focus on career-oriented situations (interviews, presentations, discussions, meetings). Prerequisites: full-time M.B.A. study, enrollment by test, and consent of ESL coordinator.

**103:189 English as a Second Language: Reading Skills**

Increasing reading speed and comprehension of university-level writing and vocabulary; exercises, discussion, and note-taking assignments to develop critical analysis skills. Prerequisite: consent of ESL coordinator.

**103:190 English as a Second Language: Writing Skills for Graduate Students**

3 s.h.
Discourse considerations; styles of organization, types of argumentation, methods of analysis expected of graduate students. Prerequisites: TOEFL score of at least 550 (paper-based) or 213 (computer-based) or 81 (internet-based) or equivalent, and graduate standing.

**Iowa Intensive English Program (IIEP)**

These courses are for students whose first language is not English. The Iowa Intensive English Program primarily serves students on conditional admission, those who have not yet been admitted to the University, and those who score below 530 (paper-based), 197 (computer-based), or 71 (internet-based) on the Test of English as a Foreign Language (TOEFL).

**103:001 Iowa Intensive English: Communication Skills**
Aural comprehension, spoken English; U.S. culture; information exchange, talking with Americans; cultural differences; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

**103:002 Iowa Intensive English: Communication Skills for Professionals**
Listening and speaking skills for international professionals; conversational fluency, language for professional interactions (e.g., discussions and presentations). Prerequisite: consent of ESL coordinator.

**103:003 Iowa Intensive English: Reading**
Effective reading: skills and practice of reading strategies using newspapers, popular magazines, schedules, documents, academic textbooks, correspondence, literature; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

**103:004 Iowa Intensive English: Grammar**
Correct use of English grammatical structures; extensive practice to achieve competence in English communication; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

**103:005 Iowa Intensive English: Writing**
Personal and formal writing; journal entries, letters, critiques, essay exams, short papers involving library use; revising and editing; beginning, intermediate, advanced. Prerequisite: consent of ESL coordinator.

**Teaching Assistant Preparation in English (TAPE)**

The TAPE program is designed for prospective teaching assistants whose first language is not English and who need additional work on English communication skills. Entry to the program is determined by a test.

**103:006 TA Preparation in English: Fluency Building**
Pronunciation, fluency building, knowledge of the University of Iowa classroom. Prerequisite: consent of ESL coordinator.

**103:007 TA Preparation in English: Pronunciation**
Intensive work toward maximum intelligibility; emphasis on stress, timing, intonation. Prerequisite: consent of ESL coordinator.

**103:008 TA Preparation in English: Presentation Skills**
Intelligibility of speech and clarity of expression in presenting and responding; practice in videotaped lectures. Prerequisite: consent of ESL coordinator.

**103:009 TA Preparation in English: Orientation**
Student expectations, typical teacher/student relationships, basic classroom management at the University. Prerequisite: consent of ESL coordinator.
The Literature, Science, and the Arts Program (LSA) is in the process of closing and is no longer accepting new majors. The closure of the program was approved by the Board of Regents, State of Iowa in summer 2007.

Students who previously declared the LSA major must fulfill all requirements for the major and the Bachelor of Arts by July 29, 2011. Students who have not completed the major by this date will not be allowed to continue in the major and will need to declare a new program of study. The requirements for the major are stated below and are the same as in previous years.

Bachelor of Arts

The Bachelor of Arts in literature, science, and the arts requires a minimum of 120 s.h., including 54 s.h. of work for the major. LSA students must complete the College of Liberal Arts and Sciences General Education Program. A plan of study must include the following 24 s.h. of course work.

- LSA courses: 12 s.h.
- Natural science and social science courses: 12 s.h.

Students also must complete at least 30 s.h. of course work chosen from the following four areas. All areas must be represented; students choose 12 s.h. from each of two areas and 3 s.h. from each of the other two areas. Up to 15 s.h. of advanced course work used to complete the General Education Program may be applied to requirements of the major.

- Philosophy, religion, history
- Literature (may include literature courses taught in a language other than English; may not include courses with 08G prefix)
- Fine arts
- Foreign language (may not include courses used to complete the General Education Program foreign language component)

Students who fulfill the LSA foreign language requirement with 3 s.h. can use a course in culture, civilization, or literature taught in English by the department of the student's language of expertise. Students who fulfill the requirement with 12 s.h. cannot use courses taught in English.

By their second semester as majors, LSA students must submit a statement of purpose describing their goals. For information on writing the statement of purpose and descriptions of LSA courses for the current and coming semesters, see Requirements on the Program in Literature, Science, and the Arts web site.

Students must complete a minimum of 12 s.h. of LSA courses and at least 12 s.h. of other major courses at The University of Iowa.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: No course may satisfy more than one major requirement. Students prepare an individualized plan of study consisting of at least 14 courses, including one in foreign language beyond fourth-semester competency, so some students may need to do foreign language work early.

- Before the third semester begins: at least one-quarter of the semester hours required for graduation
- Before the fifth semester begins: a plan of study, language competency in the language of choice, and at least one-half of the semester hours required for graduation
- Before the seventh semester begins: at least six courses from the plan of study and at least three-quarters of the semester hours required for graduation
- Before the eighth semester begins: four more courses from the plan of study
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Superior students who undertake a further program of independent study may earn the Bachelor of Arts with honors. To be admitted as candidates for a degree with honors, students must have the endorsement of the Program in Literature, Science, and the Arts advisor and must meet the requirements for the University of Iowa Honors Program. Membership in the Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Honors students submit an honors project to a faculty committee.

Literature, Science, and the Arts Courses

033:030 Introduction to Critical Thinking 3 s.h.
Concepts and skills required for critical thinking about what should and should not be taken as true; analysis and evaluation of a variety of complex extended arguments.

033:040 The Good Society 3 s.h.
Critiques of the existing social order, articulation of models of a good society with associated conceptions of the good life. GE: Humanities. Same as 169:040.

033:050 Making Choices: Interdisciplinary Perspectives 3 s.h.
GE: Humanities. Same as 169:050.

033:055 Revolutions in 19th-Century France 3 s.h.
GE: Humanities. Same as 009:055.

033:056 The Splendor of Cities 3 s.h.
Evolution of city structure in response to social, cultural, political, and economic forces; cities through time and across continents; varied resource materials, including video, novels, texts. Same as 102:055.

033:060 Scientific Reasoning 3 s.h.
Patterns of reasoning useful for understanding and evaluating scientific evidence, theory, controversy; historical and contemporary examples from the physical, biological, behavioral, biomedical sciences. GE: Quantitative or Formal Reasoning.

033:075 Cultural Diversity and Identity 3 s.h.
The nature of personal and cultural identity within a pluralistic society; race, ethnicity, national identity, class, sexuality, and gender as categories of cultural difference. Prerequisite: 010:002 or 010:003. GE: Cultural Diversity.

033:080 Introduction to Place Studies 3 s.h.
Same as 169:080.

033:110 Comparative Arts 3 s.h.
Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories. Same as 048:110, 181:110.

033:115 What is Storytelling For? 3 s.h.
Same as 01J:115.

033:125 Germany in the World 3 s.h.
The Federal Republic of Germany's increasing prominence in post-Cold War international affairs, against backdrop of 20th-century history. Taught in English. GE: Foreign Civilization & Culture. Same as 13E:120.

033:130 Paris and the Art of Urban Life 3 s.h.
City of Paris examined in varied historical, artistic, cultural contexts; interdisciplinary. Same as 009:130, 01H:157.

033:139 Religion and Environmental Ethics 3 s.h.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Prerequisite: junior or senior standing or consent of instructor. Same as 032:130, 113:139.

**033:143 Gender Issues in Science and Medicine**
Impact of gender on diagnosis, treatment, allocation and utilization of resources in medicine; study design, data collection, interpretation, and implementation of results in research. 3 s.h.

**033:144 Mind and Behavior**
Theories of what it is to act and know, of what intelligence might be in animals, humans, machines; perspectives from philosophy, psychology. Prerequisites: (for 031:174) an approved statistics course, grade of C- or higher in 031:002 or 031:016 or equivalent, 031:010 or equivalent, and junior or senior standing or consent of instructor. Prerequisite: (for 033:144) junior or senior standing or consent of instructor. Same as 031:174. 3 s.h.

**033:147 Nature vs. Nurture: Theory to Practice**
Sex differences in cognitive abilities explored through psychosocial versus biological perspective; impact on populations, especially women in science, math, engineering, technology. 3 s.h.

**033:152 Values in the Contemporary World**
Modern problems in definition and choice of values; writings of contemporary ethical theorists, novelists. Same as 032:149. 3 s.h.

**033:153 Hard Cases: Science Policy and Values**
Major issues in practical ethics through difficult case studies in fields such as law, medicine, business, politics; readings in classic authors; recent contributions from several disciplines. Same as 060:153. 3 s.h.

**033:154 Human Nature and the Impact of Science**
Relationships among scientific, humanistic, social, religious thought. GE: Humanities. 3 s.h.

**033:161 The Arts in Performance**
GE: Fine Arts, Humanities. Same as 049:161, 137:161, 188:161. 3 s.h.

**033:170 Trains of Thought**
3 s.h.

**033:175 Art, Law, and Ethics**
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 01H:182, 024:161, 091:192. 3 s.h.

**033:180 Special Projects**
arr.

**033:185 Culture, Diversity, and Identity**
Nature of personal and cultural identity within a pluralistic society; race, ethnicity, national identity, class, sexuality, and gender as categories of cultural difference. Same as 049:185. 3 s.h.

**033:191 Independent Study for Honors**
arr.
Mathematics

Chair: Yi Li
Associate professors: Richard Baker, Frauke Bleher, Isabel Darcy, Oguz Durumeric, Laurent Jay, Walter Seaman
Associate professors emeriti: Michael A. Geraghty, John P. Lediaev
Assistant professors: Bruce Ayati, Rodica Curtu, Hao Fang, Muthukrishnan Krishnamurthy, Dong Li, Colleen Mitchell, Madlena Tomova, Julianna Tymoczko
Assistant professor emerita: Matilde Macagno
Undergraduate degrees: B.A., B.S. in Mathematics
Undergraduate nondegree program: Minor in Mathematics
Graduate degrees: M.S., Ph.D. in Mathematics
Web site: http://www.math.uiowa.edu

Mathematics is a basic tool for understanding modern society as well as a crucial requirement for many careers in science, engineering, business, and the professions. Research in this living, dynamic subject is at the highest level in history.

An undergraduate degree in mathematics prepares students for a variety of careers in government and business, for secondary teaching, for graduate study, and with proper planning, for a variety of professional programs. Graduate study is advisable for some business and governmental positions and for college and university teaching and research.

Undergraduate Programs

The department offers a Bachelor of Science, a Bachelor of Arts, and a minor in mathematics. Students seeking either the B.A. or B.S. enroll in one of three programs: Program A is for students who plan to work in business or government or pursue graduate study in mathematics; program B is for students who seek secondary school teaching licensure; and program C is for those seeking specialization in a math-related area, such as actuarial science, biomathematics, business, computer science, economics, physics, statistics, and so forth. Program C may be especially appropriate for students who plan to seek a math-related job after earning a B.A. or B.S. in mathematics, rather than going on to graduate study.

B.A. or B.S. with Double Major

Students may choose to combine a major in mathematics with a major or second degree in computer science, statistics, actuarial science, or other disciplines. They must satisfy all requirements of program A, program B, or program C in mathematics as well as all requirements for the additional major or degree. For more information, consult an advisor and see Earning a Degree (Earning Two or More Majors, and Earning Multiple Undergraduate Degrees) in the College of Liberal Arts and Sciences Student Academic Handbook.

Transfer from Engineering to Mathematics


Bachelor of Arts, Bachelor of Science

The Bachelor of Arts in mathematics requires a minimum of 120 s.h., including at least 37-39 s.h. (11 courses) of work for the major. The Bachelor of Science in mathematics requires a minimum of 120 s.h., including at least 43-45 s.h. (13 courses) of work for the major. The semester hour requirement for each degree varies, depending on the student's choice of program A, B, or C.

At least 15 s.h. of post-calculus course work applied toward the major must be taken at The University of Iowa. Post-calculus courses are those numbered 22M:027 and above that have a calculus prerequisite. Students must maintain a g.p.a. of at least 2.00 in all course work for the major.

Students also must complete the College of Liberal Arts and Sciences General Education Program.

For policies concerning transfer credit, correspondence credit, credit by examination, cumulative grade-point average, rules relating to regression and duplication, and so forth, see the College of Liberal Arts and Sciences Student Academic Handbook. For information about duplication, regression, and use of the second-grade-only option for mathematics courses, contact the Department of Mathematics.

The Handbook for Undergraduate Majors is available from the Department of Mathematics and on its web site. The handbook provides details about schedule planning and career options. For more information on admission, financial
support, employment opportunities, the faculty, facilities, and other topics, visit The University of Iowa and Department of Mathematics web sites.

**Program A**

Program A is primarily for students who plan to work in business or government or to pursue graduate study in mathematics.

Students must complete seven core courses. In addition, B.A. students must complete at least four electives, and B.S. students must complete at least six.

**CORE COURSES**

A two-semester sequence of calculus I-II (8 s.h.) is required. Advanced placement credit, CLEP credit, and credit obtained through the Mathematics Incentive Program is accepted for all or part of the calculus requirement.

All of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:025-22M:026</td>
<td>Calculus I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>22M:027</td>
<td>Introduction to Linear Algebra</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:050</td>
<td>Introduction to Abstract Algebra I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:055-22M:056</td>
<td>Fundamental Properties of Spaces and Functions I-II</td>
<td>7 s.h.</td>
</tr>
<tr>
<td>22M:100</td>
<td>Introduction to Ordinary Differential Equations</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

**ELECTIVES**

B.A. students complete four electives (each 3-4 s.h.) chosen from the following list, including at least one upper-level mathematics course.

B.S. students complete six electives chosen from the following list, including at least three upper-level mathematics courses.

**Mathematics**


**Computer Science**

22C:016 Computer Science I: Fundamentals  
4 s.h.

Any course numbered above 22C:020 that counts toward an undergraduate major in computer science, except 22C:197 and 22C:198

**Statistics and Actuarial Science**

Students can count only one of these: 22S:039 Probability and Statistics for the Engineering and Physical Sciences, 22S:120 Probability and Statistics, or 22S:130 Introduction to Mathematical Statistics I. None of them can be counted if taken after 22S:153 Mathematical Statistics I.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22S:039</td>
<td>Probability and Statistics for the Engineering and Physical Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:120</td>
<td>Probability and Statistics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22S:130</td>
<td>Introduction to Mathematical Statistics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:131</td>
<td>Introduction to Mathematical Statistics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:138</td>
<td>Bayesian Statistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:150</td>
<td>Regression Time Series and Forecasting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:153</td>
<td>Mathematical Statistics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:154</td>
<td>Mathematical Statistics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:156</td>
<td>Applied Time Series Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:158</td>
<td>Experimental Design and Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Program B

Program B is intended for students seeking secondary school teaching licensure. See the department's Handbook for Undergraduate Majors, and see Teaching and Learning (College of Education) in the Catalog.

CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement.

All of these:

- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22M:025-22M:026 Calculus I-II 8 s.h.
- 22M:027 Introduction to Linear Algebra 4 s.h.
- 22M:028 Calculus III 4 s.h.
- 22M:050 Introduction to Abstract Algebra I 3 s.h.
- 22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.
- 22M:070 Foundations of Geometry 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.


One of these:

- 22M:150 Introduction to Discrete Mathematics 3 s.h.
- 22M:151 Discrete Mathematical Models 3 s.h.

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES

B.A. students in Program B must take at least one additional course beyond calculus. B.S. students in Program B must take at least three additional courses beyond calculus, of which two must be numbered 22M:107 or above. With their advisor's approval, capable students are encouraged to substitute more advanced courses in the same subject area for any of the electives. The Handbook for Undergraduate Majors offers advice on course selection.

Program C

Program C provides a degree with specialization in a math-related area, such as the mathematics of making optimal business decisions, risk management and insurance, economics, physics, chemistry, biostatistics, biomathematics, computer science, and statistics and actuarial science. In consultation with the faculty advisor, each student prepares a program of studies tailor-made to his or her interests and academic or career goals. Building on a core of mathematics courses, students have considerable freedom to design their curriculum. The proposed program of studies must be approved by the mathematics department undergraduate committee. Students should submit their study plans on a Program C Plan of Study form, available at the mathematics department office. The Handbook for Undergraduate Majors has plans for choosing electives in several areas; students may use these or propose other plans.
CORE COURSES

A two-semester sequence of calculus I-II (8 s.h.) is required. Advanced placement credit, CLEP credit, and credit earned through the Mathematics Incentive Program is accepted for part or all of the calculus requirement.

- 22M:025-22M:026 Calculus I-II 8 s.h.
- 22M:027 Introduction to Linear Algebra 4 s.h.

One of these:

- 22M:028 Calculus III 4 s.h.
- 22M:056 Fundamental Properties of Spaces and Functions II 4 s.h.

One additional proof course (e.g., 22M:050 Introduction to Abstract Algebra I or 22M:055 Fundamental Properties of Spaces and Functions I)

More advanced courses may be substituted for the core courses, with Department of Mathematics approval.

ELECTIVES

Students choose six electives for the B.A. and eight for the B.S. Students choose electives according to their specialization area. At least three electives must be mathematical sciences courses (prefixes 22C, 22M, and 22S).

For a list of suggested subtracks and restrictions on electives in each subtrack, consult the Handbook for Undergraduate Majors.

B.A. or B.S. with Teacher Licensure

Mathematics majors seeking licensure to teach in elementary and/or secondary schools should choose program B (Bachelor of Arts or Bachelor of Science); see "Program B" above. For information about teacher licensure and the Teacher Education Program, see Teaching and Learning (College of Education) in the Catalog.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Note: Much of the work in mathematics must be taken in sequence, so students must begin major requirements as early as possible, and individual plans of study must be worked out carefully. The B.A. in mathematics typically requires 11 courses, and the B.S. requires 13. Students must choose program A, B, or C by the end of the third semester and must remain in their chosen program until they graduate in order to stay on track for the four-year graduation plan.

Before the third semester begins: course work through second-semester calculus and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two or three more courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three or four more major courses and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more major courses

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to graduate with honors in mathematics, a student must be a member of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Honors students in mathematics also must complete the regular requirements for an undergraduate major in mathematics with a g.p.a. of at least 3.40, and must complete either an honors project or the courses 22M:115 Introduction to Analysis I and 22M:116 Introduction to Analysis II, and 22M:120 Abstract Algebra I and 22M:121 Abstract Algebra II with a g.p.a. of 3.00 or higher. Other sequences, such as

Students planning an honors project are responsible for finding a faculty member willing to supervise the project. For help finding a project supervisor, contact the department. Students typically register for 22M:197 Individual Study and Honors in Mathematics for at least 3 s.h. For more information, contact the mathematics department honors advisor.

Minors

The minor in mathematics requires a minimum of 15 s.h. in mathematics courses, including 12 s.h. in advanced courses taken in the Department of Mathematics at The University of Iowa. Transfer credit and credit by examination do not count toward the 12 s.h. of advanced work. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.


Students seeking a mathematics minor must maintain a g.p.a. of at least 2.00 in all work attempted in the department.

Graduate Programs

The department offers the Master of Science and the Doctor of Philosophy in mathematics.

Master of Science

The Master of Science in mathematics requires a minimum of 30 s.h. of graduate credit. Students earn the degree through courses and comprehensive examinations. There is no M.S. thesis. Requirements (courses and comprehensive examination areas) may be modified with the department's consent.

Four different programs (I, II, III, and IV) lead to the M.S. in mathematics. Program II is designed for secondary school teachers.

Program I

Program I prepares students for further study of pure and applied mathematics and for employment in government and business. M.S. students in program I take several courses and pass two comprehensive examinations. Students must earn a grade of B-minus or higher in six of the courses and maintain a g.p.a. of at least 2.75 in all mathematics courses taken for the degree.

The following courses are required.

- 22M:115-22M:116 Introduction to Analysis I-II 6 s.h.
- 22M:120-22M:121 Abstract Algebra I-II 6 s.h.
- 22M:132 General Topology 3 s.h.
- 22M:133 Introduction to Smooth Manifolds 3 s.h.
- 22M:142 Nonlinear Dynamics with Numerical Methods 3 s.h.
- 22M:144 Partial Differential Equations with Numerical Methods 3 s.h.

Each student must pass two M.S.-level comprehensive exams, chosen from algebra, analysis, differential equations with numerical methods, and topology.

Program II

Program II is designed for secondary school teachers. Program II requirements are the same as those for programs I and III, except that two mathematics education courses are required. All mathematics courses numbered 22M:100 or above may be used to satisfy the required 24 s.h. of course work. Students are encouraged to consult with the mathematics education faculty when planning their course of study.

Program III
Program III focuses on applied mathematics. Students in program III take several courses and pass two comprehensive examinations. Students must earn a grade of B-minus or higher in six of the courses and maintain a g.p.a. of at least 2.75 in all mathematics courses taken for the M.S.

The following courses are required.

All of these:

- 22M:115-22M:116 Introduction to Analysis I-II [6 s.h.]
- 22M:142 Nonlinear Dynamics with Numerical Methods [3 s.h.]
- 22M:144 Partial Differential Equations with Numerical Methods [3 s.h.]

Both courses in group A, or both courses in group B:

**Group A**

- 22M:132 General Topology [3 s.h.]
- 22M:133 Introduction to Smooth Manifolds [3 s.h.]

**Group B**

- 22M:140 Continuous Mathematical Models [3 s.h.]
- 22M:151 Discrete Mathematical Models [3 s.h.]

Each student must pass two M.S.-level comprehensive exams, chosen from analysis, differential equations with numerical methods, numerical analysis, and topology.

**Program IV**

Program IV is designed for nondepartmental students working toward the Ph.D. in areas that require mathematical knowledge. The program has no specific required courses. Course distribution requirements are the same as those for program I.

Students in program IV are considered to have passed the comprehensive examination for the master's degree in mathematics if they have maintained a g.p.a. of at least 3.00 in all mathematics courses taken for the M.S. in mathematics and have successfully completed the Ph.D. comprehensive examination in their chosen area.

Students in program IV are assigned a mathematics advisor, who works with them and their major advisor to plan an appropriate curriculum for the M.S. in mathematics. A suitable program of study should be approved by a mathematics advisor before the student takes the Ph.D. comprehensive examination, and a member of the mathematics faculty should serve on the Ph.D. comprehensive examination committee.

**Doctor of Philosophy**

The Doctor of Philosophy in mathematics requires a minimum of 72 s.h. of graduate credit. The program places strong emphasis on preparation for research and teaching. The department maintains no division between pure and applied mathematics. It cooperates in interdisciplinary doctoral programs with the College of Education (see Teaching and Learning in the Catalog) and the Program in Applied Mathematical and Computational Sciences.

Ph.D. students in mathematics must satisfy the following requirements for course work (credits and breadth), examinations, foreign language, and the Ph.D. thesis.

Students must spend at least three years in residence at a graduate college, including at least one year at The University of Iowa. They also should enroll in specific courses designated as preparatory for the Ph.D. examinations (consult the Department of Mathematics graduate studies director).

To further encourage mathematical breadth, students must earn at least 33 s.h. of graduate credit in regular courses equivalent to or more advanced than Ph.D. comprehensive examination preparatory courses. For a list of accepted 200-level and 300-level courses, and rules to ensure proper distribution, contact the department.

The Ph.D. examinations consist of a qualifying exam and a comprehensive exam. Students choose three areas from the department's list of qualifying examination areas: algebra, analysis, differential equations with numerical methods, and topology. For each qualifying area, there is a two-semester, 100-level course sequence designated as preparatory, although exams may differ from course content. The three parts of the qualifying exam are taken over a two-week period. One grade (pass, fail, conditional pass) is given on the entire three-part qualifying examination by a
committee of six faculty members, two from each exam area. If the grade is fail, the committee has the option to
counter each part of the exam separately, offering the student the option of pass in one or two of the areas and fail in
the other(s).

The Ph.D. comprehensive exam tests students on research-related topics.

Candidates also take an oral final examination on their dissertation material.

Ph.D. students are required to demonstrate reading proficiency in French, German, or Russian by passing a reading
test administered by the appropriate language department, earning a grade of B or higher in the second semester of a
sequence offered by the appropriate language department, or passing a special examination approved by the
Department of Mathematics graduate committee. Courses that do not carry graduate credit can be used to satisfy this
requirement, but they do not count toward the required 72 s.h. of graduate credit. Students must demonstrate
language competence after enrolling in graduate school.

The most distinctive aspect of a Ph.D. is the thesis. The department expects the thesis to be an original mathematical
work comparable in content and writing quality to that found in standard published research journals. The thesis is
written under the supervision of a mathematics department faculty member and is approved by a committee.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations
of the Graduate College or the Graduate College section of the Catalog.

Master of Science

Admission to M.S. programs I, II, and III is based on a combination of undergraduate course work and grades, letters of
recommendation, and test scores. Numerical standards change every year or so; exceptions may be made to the
following guidelines.

Applicants must have completed work in an undergraduate program equivalent to the bachelor's degree offered by the
mathematics department, with an undergraduate g.p.a. of at least 3.20. Relevance and difficulty of courses are
considered when evaluating grades; grades of C or lower in mathematics courses must be balanced by grades of A.
Those whose preparation does not meet this requirement may be admitted conditionally and are asked to take specific
courses that cover any deficiencies.

They also must score at least 700 on the quantitative section of the GRE General Test. Applicants whose first
language is not English are required to demonstrate their competence in English, normally by scoring at least 620
(paper-based), 260 (computer-based), or 105 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must submit three letters of recommendation.

Doctor of Philosophy

Admission to the Ph.D. program is based on a combination of undergraduate or graduate course work and grades,
letters of recommendation, and test scores. Admission requirements are similar to those for the Master of Science, but
the department generally seeks stronger grades and scores for doctoral admission: undergraduate or graduate g.p.a.
of at least 3.40; GRE General Test quantitative score of at least 700; and for applicants whose first language is not
English, scores of at least 620 (paper-based), 260 (computer-based), or 105 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must submit three letters of recommendation.

Mathematics Courses

For Lower-Division Undergraduates

These courses are not open to graduate students except by special arrangement with the department chair. Credit
earned in 22M:001 Basic Algebra I, 22M:002 Basic Algebra II, and 22M:003 Basic Geometry does not count toward
degree requirements.

Variable Calculus and 22M:032 Engineering Mathematics II: Multivariable Calculus are similar, they cover the material
in a different order and with different emphases. Students must consult with their advisor before taking the second
semester of one sequence after taking the first semester of another. Students who consider taking 22M:026 Calculus
II after 22M:016 Calculus for the Biological Sciences or 22M:017 Calculus and Matrix Algebra for Business must
consult with their advisor.

22M:001 Basic Algebra I

Percents, ratio and proportion, algebraic expressions and operations, simple products, linear and quadratic equations,
simultaneous equations, exponents and radicals; emphasis on verbal problems.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>22M:002</td>
<td>Basic Algebra II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Algebraic techniques, equations and inequalities, functions and graphs, exponential and logarithmic functions, systems of equations and inequalities. Prerequisite: 22M:001 or satisfactory score on math placement exam or one year of high school algebra.</td>
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<tr>
<td>22M:003</td>
<td>Basic Geometry</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Angles, triangles, polygons, areas, Pythagorean theorem, similar triangles, circles, loci, related topics. Offered spring semesters. Prerequisite: 22M:001 or satisfactory score on math placement exam or one year of high school algebra.</td>
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<tr>
<td>22M:005</td>
<td>Trigonometry</td>
<td>3 s.h.</td>
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<td></td>
<td>Trigonometric functions, solutions of right and oblique triangles, complex numbers. Prerequisite: 22M:002, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry.</td>
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<tr>
<td>22M:006</td>
<td>Logic of Arithmetic</td>
<td>3 s.h.</td>
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<td></td>
<td>Mathematical and conceptual foundations of the natural numbers used in elementary school arithmetic teaching; multiple algorithmic approaches to arithmetic and its mathematical and contextual relationships, extensions to integers, rational and irrational numbers, multiple representations. Prerequisite: 22M:001 or satisfactory score on math placement exam or equivalent or consent of instructor. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:009</td>
<td>Elementary Functions</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Functions, relations, coordinate systems; properties and graphs of algebraic, trigonometric, logarithmic, exponential functions; inverse trigonometric functions; properties of lines, conic sections. Prerequisite: 22M:005, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:010</td>
<td>Finite Mathematics</td>
<td>4 s.h.</td>
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<td></td>
<td>Introduction to logic, set theory, linear equations and inequalities, linear programming, matrix algebra, combinatorial probability. Prerequisite: 22M:002 or satisfactory score on math placement exam or two-and-a-half years of high school mathematics. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:012</td>
<td>Theory of Arithmetic</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Sets, cardinalities, reasoning in proofs, counterexamples, arithmetic with integers, rationals, irrationals, number theory, functions, algebraic expressions. Prerequisite: 22M:009 or a more advanced course or satisfactory score on math placement exam or equivalent or consent of instructor. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:013</td>
<td>Mathematics for Business</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Algebraic techniques, functions and functional models, exponential and logarithmic functions and models, linear programming, informal introduction to calculus; examples and applications from management, economic sciences, related areas. Prerequisites: 22M:002, or satisfactory score on math placement exam, or two years of high school algebra and one year of high school geometry. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:014</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
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<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.</td>
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<tr>
<td>22M:015</td>
<td>Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Relations, functions, coordinate systems, graphing, polynomials, trigonometric functions, logarithmic and exponential functions; discrete mathematics, probability; examples and applications from biological sciences. Prerequisite: 22M:002 or satisfactory score on math placement exam or three years of high school mathematics. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:016</td>
<td>Calculus for the Biological Sciences</td>
<td>4 s.h.</td>
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<td></td>
<td>Differential, integral calculus; differential equations, multivariable calculus; applications to life sciences. Prerequisite: 22M:015; or satisfactory score on math placement exam; or three and one-half years of high school mathematics, including trigonometry. GE: Quantitative or Formal Reasoning.</td>
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<tr>
<td>22M:017</td>
<td>Calculus and Matrix Algebra for Business</td>
<td>4 s.h.</td>
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</tbody>
</table>
Quantitative methods for treating problems arising in management, economic sciences, related areas; introduction to differential and integral calculus, systems of linear equations and matrix operations. Prerequisite: 22M:002 or 22M:013 or satisfactory score on math placement exam. GE: Quantitative or Formal Reasoning.

### 22M:025 Calculus I
4 s.h.
Fundamental concepts, methods, techniques of single-variable differential and integral calculus; differentiation, techniques of integration, series, applications. Prerequisite: 22M:009; or 22M:002 and 22M:005; or three and one-half years of high school mathematics, including analytic geometry and trigonometry. GE: Quantitative or Formal Reasoning.

### 22M:026 Calculus II
4 s.h.
Continuation of 22M:025. Prerequisite: 22M:025 or consent of advisor.

### 22M:027 Introduction to Linear Algebra
4 s.h.
Vector algebra and geometry of three-dimensional Euclidean space and extensions to n-space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row echelon form, dimension, rank, determinants, eigenvalues and eigenvectors. Prerequisite: 22M:025 or 22M:031 or consent of instructor.

### 22M:028 Calculus III
4 s.h.
Multivariable calculus; vector functions, line integrals, total differentials, gradient, implicit functions, coordinate systems, Taylor's expansion, extrema, multiple integrals, vector fields, surface integrals, Stokes' theorem. Prerequisite: 22M:026 or consent of instructor.

### 22M:031 Engineering Mathematics I: Single Variable Calculus
4 s.h.
Limits, derivatives, max/min, other applications, mean-value theorem, approximating functions, concavity, curve sketching, exponential models; Riemann sums, fundamental theorem; integration techniques, improper integrals, approximations. Prerequisite: 22M:005 or 22M:009; or three and one-half years of high school mathematics, including introduction to analytic geometry and trigonometry. GE: Quantitative or Formal Reasoning.

### 22M:032 Engineering Mathematics II: Multivariable Calculus
4 s.h.
Vector geometry; functions of several variables; polar coordinates; partial derivatives, gradients, directional derivatives; tangent lines and planes; max/min/parametric curves, curvilinear motion; multiple integrals; vector fields, flows; integration on curves, work; divergence, flux, Green's theorem. Prerequisite: 22M:031, or score of 4 or higher on AP Calc (AB) exam, or score of 3 or higher on AP Calc (BC) exam, or consent of instructor.

### 22M:033 Engineering Mathematics III: Matrix Algebra
2 s.h.
Applications, computers for matrix calculations; matrix, vector arithmetic; linear independence, basis, subspace (in R2, R3); systems of equations, matrix reduction; rank, dimension; determinants, applications; eigenvalues, eigenvectors; diagonalization, principal axis theorem. Prerequisites: 22M:031, and engineering major or consent of department chair.

### 22M:034 Engineering Mathematics IV: Differential Equations
3 s.h.
Ordinary differential equations and applications, with integrated use of computing, student projects; first-order equations; higher order linear equations; systems of linear equations, Laplace transforms; introduction to nonlinear equations and systems, phase plane, stability. Prerequisites: 22M:032, 22M:033, and engineering major or consent of department chair.

### 22M:037 Engineering Mathematics V: Vector Calculus
3 s.h.
Partial derivatives, max-min problems, integrals along curves, surfaces and solids, vector fields and conservation of energy; curl, divergence, Stokes' theorem and the divergence theorem; the classical partial differential equations and qualitative behavior of their solutions. Prerequisites: 22M:034 or consent of instructor, and engineering major or consent of department chair.

### Elementary Topics of General Interest
These courses are not open to graduate students except by special arrangement with the department chair.

### 22M:050 Introduction to Abstract Algebra I
3 s.h.
Basic logic, proof methods, sets, functions, relations, mathematical induction; gradual transition from familiar number systems to abstract structures—division algorithm, unique factorization theorems; groups, subgroups, quotient groups, homomorphisms. Prerequisite: 22M:027. Corequisite: second-semester calculus or consent of instructor.

22M:055 Fundamental Properties of Spaces and Functions I
Elementary topological and analytic properties of real numbers; emphasis on ability to handle definitions, theorems, proofs. Prerequisite: second-semester calculus. Corequisite: 22M:027 or consent of instructor.

22M:056 Fundamental Properties of Spaces and Functions II
Multivariable analysis; Bolzano-Weierstrass theorem in three-dimensional Euclidean space, differential calculus, inverse and implicit function theorems, multiple integrals, surface and line integrals, differential forms and Stokes' theorem in n-dimensional Euclidean space. Prerequisites: 22M:055; closed to students who have taken 22M:028.

22M:070 Foundations of Geometry
Axiomatic development of common foundation for Euclidean, non-Euclidean geometry; constructions of non-Euclidean models, independence of parallel postulate. Prerequisite: 22M:026 or equivalent.

22M:072 Elementary Numerical Analysis
Computer arithmetic, root finding, polynomial approximation, numerical integration, systems of linear equations, ordinary differential equations; use of higher-level computer language such as Matlab, Maple, Mathematica. Prerequisite: grade of C- or higher in 22M:026 or 22M:032. Same as 22C:072.

22M:081 Geometry for Elementary Teachers
Points, lines, planes; measurement, two- and three-dimensional coordinate geometry, transformational geometry and vectors; applications of geometry to solve real-world problems. Offered spring semesters. Prerequisites: 22M:001 or equivalent, and elementary teacher certificate candidacy or certification.

22M:095 Introduction to Research Opportunities
Modern mathematics research areas and activities; seminar. Prerequisite: 22M:027 or consent of instructor.

22M:096 Introduction to Mathematics Research
Research experience; students study an elementary topic of active research, then work in groups under faculty supervision. Prerequisites: 22M:026 and 22M:027, or consent of instructor.

For Upper-Division Undergraduates
Graduate students in mathematics may not receive credit for 22M:100 Introduction to Ordinary Differential Equations, 22M:104 Introduction to Matrix Theory, 22M:105 Basic Analysis, or 22M:109 Classical Analysis.

22M:100 Introduction to Ordinary Differential Equations
First-order ordinary differential equations; second-order linear differential equations; series solutions; higher-order linear and matrix differential equations; existence and uniqueness theorems. Prerequisites: 22M:027 and 22M:028, or 22M:056 or equivalent; or consent of instructor.

22M:104 Introduction to Matrix Theory
Vector algebra and geometry of three-dimensional Euclidean space and extensions to n-space and vector spaces; lines and planes, matrices, linear transformations, systems of linear equations, reduction to row-echelon form, dimension, rank, determinants, eigenvalues, eigenvectors. Prerequisite: graduate standing.

22M:105 Basic Analysis
Elementary topological and analytical properties of real numbers; emphasis on ability to handle definitions, theorems, proofs; same material as 22M:055 for non-mathematics graduate students. Prerequisites: graduate standing, one year of calculus, and one semester of linear algebra.

22M:107 History of Mathematics
May include numerical systems; Babylonian, Egyptian, and Greek mathematics; mathematics of other cultures; calculus; 19th- and 20th-century mathematics. Prerequisites: two semesters of calculus and one semester of linear algebra, or consent of instructor.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>22M:108</td>
<td>Philosophy of Mathematics</td>
<td>3 s.h.</td>
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<tr>
<td>22M:109</td>
<td>Classical Analysis</td>
<td>3 s.h.</td>
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<tr>
<td>22M:115</td>
<td>Introduction to Analysis I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:116</td>
<td>Introduction to Analysis II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:118</td>
<td>Complex Variables</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:120</td>
<td>Abstract Algebra I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:121</td>
<td>Abstract Algebra II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:122</td>
<td>Foundations of Set Theory</td>
<td>3 s.h.</td>
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<tr>
<td>22M:123</td>
<td>Foundations of Logic</td>
<td>3 s.h.</td>
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<tr>
<td>22M:124</td>
<td>General Topology</td>
<td>3 s.h.</td>
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<tr>
<td>22M:125</td>
<td>Master's Comprehensive Exam Preparation Seminars</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>22M:126</td>
<td>Elementary Theory of Numbers</td>
<td>2-3 s.h.</td>
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<tr>
<td>22M:127</td>
<td>Matrix Theory</td>
<td>3 s.h.</td>
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<tr>
<td>22M:132</td>
<td>General Topology</td>
<td>3 s.h.</td>
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</tbody>
</table>
Basic concepts of general topological spaces and continuous functions: countability of sets, topological space, comparing topologies; subspace, order, and product topologies; closed sets and limit points, continuous functions, metric topology, quotient topology (including projective spaces and gluing cells), connectedness in the real line and in general spaces, components and local connectedness, compactness in Euclidean and general spaces, limit point compactness, local compactness, countability axioms, separation axioms, normal spaces and Urysohn’s Lemma, complete metric spaces, convergence in function spaces. Prerequisite: 22M:055 or consent of instructor.

22M:133 Introduction to Smooth Manifolds 3 s.h.
Calculus on smooth manifolds; smooth functions, mean value theorem, chain rule, smooth manifolds, tangent vectors, tangent spaces, inverse and implicit functions theorems, submersions and immersions, vectorfields, flows, multilinear algebra, differential forms, Stokes theorem. Prerequisites: 22M:027, 22M:055, and 22M:028 or 22M:056 or consent of instructor.

22M:140 Continuous Mathematical Models 3 s.h.
Building and analyzing mathematical models involving differential equations for specific problems from engineering and the sciences; modeling project. Prerequisite: 22M:100 or equivalent or consent of instructor.

22M:142 Nonlinear Dynamics with Numerical Methods 3 s.h.
Nonlinear differential equations, one- and two-dimensional flows, stability, phase plane analysis, limit cycles, bifurcations, chaos, fractals; Euler's, multistep, and Runge-Kutta numerical methods. Prerequisites: 22M:055 and 22M:100, or consent of instructor.

22M:144 Partial Differential Equations with Numerical Methods 3 s.h.
Conservation laws, weak solutions, diffusion equation, Laplace's equation, finite difference methods, variational methods, finite element method. Prerequisite: 22M:028, 22M:055, and 22M:100 or consent of instructor.

22M:150 Introduction to Discrete Mathematics 3 s.h.
Basic methods of enumerative combinatorics, inclusion-exclusion and generating functions, applications of group theory (Polya-Burnside theorem). Offered fall semesters. Prerequisite: 22M:050 or equivalent or consent of instructor.

22M:151 Discrete Mathematical Models 3 s.h.
Case history approach to discrete models from various fields (e.g., genetics, psychology, health care, scheduling); construction, interpretation, analysis, simulation, testing of models; development of discrete mathematics. Prerequisite: 22M:027 or equivalent or consent of instructor.

22M:152 Theory of Graphs 3 s.h.
Connectivity properties, including Euler, Hamilton cycle problems; graph colorings, matchings; characterization of families of graphs such as trees, planar graphs, networks; graph algorithms, their applications. Prerequisite: 22M:050 or equivalent or consent of instructor. Same as 22C:137.

22M:160 Introduction to Differential Geometry I 3 s.h.
Space curves, differentiable manifolds, vector and tensor fields, integration of forms, covariant differentiation, intrinsic geometry of surfaces. Prerequisites: 22M:028 and 22M:055, or 22M:056 or 22M:100 or equivalent or consent of instructor.

22M:161 Introduction to Differential Geometry II 3 s.h.
May include Riemannian geometry, rigidity theorems, minimal surfaces, connections, elementary Lie groups, relativity. Prerequisite: 22M:160 or equivalent or consent of instructor.

22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
Root finding for nonlinear equations; polynomial interpolation; polynomial approximation of functions; numerical integration. Prerequisites: 22M:027 and 22M:028, or 22M:037 or 22M:056 or equivalent or consent of instructor; and knowledge of computer programming. Same as 22C:170.

22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
Numerical methods for initial value problems for ordinary differential equations; direct and iterative methods for linear systems of equations; eigenvalue problems for matrices. Prerequisites: 22M:027 and 22M:028; or 22M:037 or 22M:056 or equivalent or consent of instructor; knowledge of computer programming; and 22M:100. Same as 22C:171.

22M:174 Optimization Techniques 3 s.h.
Basic theory of optimization, use of numerical algorithms in solution of optimization problems; linear and nonlinear programming, sensitivity analysis, convexity, optimal control theory, dynamic programming, calculus of variations. Prerequisites: 22M:027, 22M:028 or 22M:056, and 22M:072 or equivalent; or consent of instructor. Same as 22C:174.

**22M:178 High Performance and Parallel Computing** 3 s.h.
Parallel scientific computing methods such as parallel algorithms for dense and sparse matrices; implementation using libraries such as MPI; current topics such as grid computing. Prerequisites: a linear algebra course or a numerical analysis course, and a programming language. Same as 22C:177.

**22M:191 Topics in Technology Uses in Mathematics** 2 s.h.
Prerequisite: consent of instructor.

**22M:195 Current Issues in Mathematics Education** 1-3 s.h.
Recent curriculum developments, experimental programs, research relevant to classroom instruction, trends in education that may have a significant impact on mathematics programs. Same as 07E:235, 07S:235.

**22M:196 Topics in Mathematics** arr.
Prerequisite: consent of instructor.

**22M:197 Individual Study and Honors in Mathematics** arr.
Prerequisite: consent of advisor.

**22M:199 Readings in Mathematics** arr.
Prerequisite: consent of instructor.

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### Core Graduate Courses

**22M:200 Introduction to Differential Topology** 3 s.h.
Manifolds, functions: tangent bundle, Morse-Sard theorem, transversality, submanifolds, tubular neighborhoods, normal bundles, vector fields, degree and intersection theory, fixed-point theory, Morse theory. Prerequisite: 22M:133 or equivalent or consent of instructor.

**22M:201 Introduction to Algebraic Topology** 3 s.h.
Homotopy, fundamental group and covering spaces, CW and simplicial complexes, simplicial homology, Euler characteristic. Prerequisite: 22M:132 or equivalent or consent of instructor.

**22M:203 Topology of Manifolds** 3 s.h.
Embedding, knotting, immersions; isotopy, homotopy, regular neighborhoods, engulfing, surgery, cobardism; three-, four-, and higher dimensional manifolds. Prerequisites: 22M:200 and 22M:201, or equivalents or consent of instructor.

**22M:205 Introduction to Algebra I** 3 s.h.
Abstract algebra: semigroups, groups, rings, integral domains, polynomial rings, division rings, fields, vector spaces, matrices, modules over rings, lattices, categories. Prerequisite: 22M:120 or equivalent or consent of instructor.

**22M:206 Introduction to Algebra II** 3 s.h.
Continuation of 22M:205. Prerequisite: 22M:205 or equivalent or consent of instructor.

**22M:210 Analysis I** 3 s.h.
Lebesgue measure and integral, fundamental theorem of calculus, abstract measures and integration, Fubini's theorem, Radon-Nikodym theorem, Riesz representation theorem, L-p spaces. Prerequisite: 22M:116 or equivalent or consent of instructor.

**22M:211 Analysis II** 3 s.h.
Hilbert space, Banach space techniques; Hahn-Banach theorem, open mapping theorem, principle of uniform boundedness; reflexivity, H-p spaces, Paley-Wiener theorem, space of functions analytic on the open unit disk. Prerequisites: 22M:118 and 22M:210, or equivalents or consent of instructor.
22M:213 Ordinary Differential Equations I
Existence, uniqueness, continuous dependence of solutions to initial value problems, autonomous systems; Poincare-Bendixon theory, linear systems and linearizations, perturbation, stability, periodic solutions, bifurcation, comparison and oscillation theorems, boundary value problems. Prerequisite: 22M:116 or equivalent or consent of instructor.

22M:214 Ordinary Differential Equations II
Continuation of 22M:213. Prerequisite: 22M:213 or equivalent or consent of instructor.

22M:216 Partial Differential Equations I
Eliptic equations; potential theory, maximum principle, a priori estimate, Dirichlet problem; initial value problem for parabolic equations; hyperbolic equations; Duhamel's principle, Cauchy problem; nonlinear equations, characteristics, canonical form, first-order systems. Prerequisite: 22M:116 or equivalent or consent of instructor.

22M:217 Partial Differential Equations II
Continuation of 22M:216. Prerequisite: 22M:216 or equivalent or consent of instructor.

22M:220 Introduction to Mathematical Logic I
Propositional calculus, first-order predicate calculus, GWdel completeness theorem, formal elementary number theory, GWdel incompleteness theorem. Prerequisite: graduate standing or consent of instructor.

22M:221 Introduction to Mathematical Logic II
Formal number theory, arithmetic hierarchy, Post theorem, formal recursive functions, Turing machines, Thu systems, world problems. Prerequisite: 22M:220 or equivalent or consent of instructor.

22M:224 First-Year Graduate Seminar
Introduction to mathematics graduate program. Prerequisite: first-year math graduate student.

Primarily for Graduate Students

22M:260 Differential Geometry I
Differential manifolds and functions, form, connections, curvature, related topics. Prerequisite: consent of instructor.

22M:261 Differential Geometry II
Continuation of 22M:260. Prerequisite: 22M:260 or equivalent or consent of instructor.

22M:270 Theoretical Numerical Analysis I
Theoretical foundations of numerical analysis, within framework of functional analysis; application areas including approximation theory, numerical methods for partial differential equations, integral equations; introduction to functional analysis. Prerequisites: 22M:115, 22M:116, 22M:170, and 22M:171; or equivalents; or consent of instructor.

22M:271 Theoretical Numerical Analysis II
Continuation of 22M:270. Prerequisite: 22M:270 or equivalent or consent of instructor.

22M:280 Introduction to Financial Mathematics
Financial mathematics; option pricing and portfolio optimization, stochastic integration, methods due to Ito and Feynman-Kac, Monte-Carlo simulation. Prerequisite: 22M:210 or equivalent or consent of instructor.

22M:303 Topics in Analysis
Measure theory, integration, general topology. Repeatable. Prerequisite: consent of instructor.

22M:305 Topics in Topology
May include homotopy theory, topology of 3-manifolds, 4-manifolds, or higher-dimensional manifolds, knotting and embedding problems, fiber bundles and characteristic classes, K-theory, PL manifolds, infinite-dimensional manifolds. Repeatable. Prerequisite: consent of instructor.

22M:313 Functional Analysis I
Locally convex topological vector spaces, duality, tensor products and nuclear spaces; Krein-Millman theorem, Choquet's theory; geometry of Banach spaces, nonlinear functional analysis; operators on Hilbert spaces, spectral theorem, algebras of operators. Prerequisite: 22M:211 or equivalent or consent of instructor.

**22M:314 Functional Analysis II**  
Continuation of 22M:313. Prerequisite: 22M:313 or equivalent or consent of instructor.

**22M:321 Topics in Applied Mathematics**  
Application of mathematics to other disciplines. Repeatable. Prerequisite: consent of instructor.

**22M:324 Topics in Partial Differential Equations**  
Regularity theory, nonlinear analysis in partial differential equations, fluid dynamics, harmonic analysis, conservation laws, other topics. Repeatable. Prerequisite: consent of instructor.

**22M:328 Topics in Logic**  
Theory of models, recursive functions, sets, deductions. Repeatable. Prerequisite: 22M:221 or equivalent or consent of instructor.

**22M:330 Topics in Algebra**  
May include algebraic number theory, groups, representation theory, algebras, ideal theory, lattice theory. Repeatable. Prerequisite: 22M:206 or equivalent or consent of instructor.

**22M:340 Homological Algebra**  
Modules, tensor products, groups of homomorphisms, categories, functors, homology functors, projective and injective modules, derived functors, torsion and extension functors, homological dimension. Prerequisite: 22M:206 or equivalent or consent of instructor.

**22M:360 Topics in Mathematical Biology**  
Application of mathematics to biology. Prerequisite: consent of instructor.

**22M:383 Seminar: Commutative Ring Theory**  
Repeatable. Prerequisite: consent of instructor.

**22M:384 Seminar: Fourier Analysis**  
Repeatable. Prerequisite: consent of instructor.

**22M:385 Seminar: Representation Theory**  
Repeatable. Prerequisite: consent of instructor.

**22M:386 Seminar in Undergraduate Mathematics Education**  
Varied topics in teaching, learning, curriculum; philosophy, objectives, strategies, methods; use of technology, group learning, projects, discovery method, multiple approaches, other current issues. Repeatable. Prerequisite: consent of instructor.

**22M:387 Seminar: Differential Geometry**  
Repeatable. Prerequisite: consent of instructor.

**22M:389 Seminar: Algebra**  
Repeatable. Prerequisite: consent of instructor.

**22M:390 Seminar: Operator Theory**  
Repeatable. Prerequisite: consent of instructor.

**22M:391 Seminar: Logic and Foundations of Mathematics**  
Repeatable. Prerequisite: consent of instructor.

**22M:392 Seminar: Topology**  
Repeatable. Prerequisite: consent of instructor.

**22M:393 Seminar: Mathematical Physics**  

Mathematics
Repeatable. Prerequisite: consent of instructor.

22M:394 Seminar: Mathematical Biology
Repeatable. Prerequisite: consent of instructor.

22M:395 Seminar: Analysis
Repeatable. Prerequisite: consent of instructor.

22M:396 Seminar: Functional Analysis
Repeatable. Prerequisite: consent of instructor.

22M:397 Seminar: Partial Differential Equations
Repeatable. Prerequisite: consent of instructor.

22M:398 Seminar: Numerical Analysis
Repeatable. Prerequisite: consent of instructor.

22M:399 Reading Research
Repeatable. Prerequisite: consent of instructor.
The Medieval Studies Program enables undergraduate students to combine study in three or more disciplines into an organized investigation of the Middle Ages, a rich historical period that continues to influence today's culture. Students can pursue the Certificate in Medieval Studies as a distinct interest or combine it with focused study in areas such as art history, classics, comparative literature, languages (e.g., French, German, Italian, Portuguese, Spanish), music, philosophy, religion, theatre, or women's studies.

Certificate

The Certificate in Medieval Studies requires a minimum of 21 s.h. in medieval studies course work. The program is open to current undergraduate students, but graduates who hold University of Iowa bachelor's degrees may return to earn the certificate.

Courses used to complete the certificate may be counted toward requirements for the College of Liberal Arts and Sciences General Education Program or toward a major or minor. Up to 6 s.h. of transfer credit may be applied toward the certificate, with the approval of the medieval studies coordinating committee.

Students must include courses from at least three different departments in their work for the certificate; they may count a maximum of 10 s.h. from a single department or program toward the 21 s.h. required. All students must complete either 162:109 Medieval Civilization I or 162:110 Medieval Civilization II and should do so early in their study program. Remaining course work may be chosen from the list of associated courses below.

Students should consult regularly with a medieval studies advisor while planning and completing their study program.

The Medieval Studies Program strongly encourages students to complete course work in a language relevant to the medieval period. Latin is recommended for anyone intending to pursue graduate study in the field. Many language courses have prerequisites, and some are offered irregularly, so students should complete their language course work as early as possible. The following language courses are approved for the medieval studies certificate.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>008:140</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20L:011-012</td>
<td>World of Cicero - Golden Age of Roman Poetry</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>032:100-101</td>
<td>Biblical Hebrew I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>195:111-112</td>
<td>Intermediate Modern Standard Arabic I-II</td>
<td>10 s.h.</td>
</tr>
</tbody>
</table>

Sample Study Plans

Both study plans below fulfill certificate requirements. The first is tailored for a student intending to pursue graduate work in medieval studies, while the second might be designed by a student with a general interest in the period.

Sample plan one:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H:040</td>
<td>Introduction to Medieval Art</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:112</td>
<td>Medieval Intellectual History 1150-1500</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20L:011</td>
<td>World of Cicero</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20L:012</td>
<td>Golden Age of Roman Poetry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:025</td>
<td>Medieval Religion and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>162:101/008:101</td>
<td>Literature and Culture of the Middle Ages</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>162:110/16E:110</td>
<td>Medieval Civilization II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Sample plan 2:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>008:140/103:132</td>
<td>Elementary Old English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:146</td>
<td>Chaucer</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:117</td>
<td>History of the Medieval Church</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16E:119</td>
<td>Women, Power, and Society in Medieval Europe</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:160</td>
<td>Medieval Spanish Literature in Context</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>162:109</td>
<td>Medieval Civilization I</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Associated Courses

The following courses are approved for the medieval studies certificate. Courses not on this list may be approved for satisfaction of certificate requirements. Students who wish to have a course approved should make a request to the Certificate in Medieval Studies coordinating committee. The coordinating committee revises the list of approved courses as necessary.

**ARABIC LANGUAGE AND LITERATURE**

- 195:111 Intermediate Modern Standard Arabic I  
  5 s.h.
- 195:112 Intermediate Modern Standard Arabic II  
  5 s.h.

**ART AND ART HISTORY**

- 01H:040 Introduction to Medieval Art  
  3 s.h.
- 01H:199 Topics in Art History (when topic is medieval)  
  3 s.h.

**CENTER FOR THE BOOK**

- 108:182/16E:120 The Book in the Middle Ages  
  3 s.h.
- 108:183/16E:118/021:258 The Transition from Manuscript to Print  
  3 s.h.

**CLASSICS**

- 20L:011 World of Cicero  
  3 s.h.
- 20L:012 Golden Age of Roman Poetry  
  3 s.h.

**ENGLISH**

- 008:060 Selected Works of the Middle Ages  
  3 s.h.
- 008:101 Literature and Culture of the Middle Ages  
  3 s.h.
- 008:140/103:132 Elementary Old English  
  3 s.h.
- 008:141 Old English Beowulf  
  3 s.h.
- 008:142 Medieval Celtic Literature  
  3 s.h.
- 008:144/049:181 Medieval Drama  
  3 s.h.
- 008:146 Chaucer  
  3 s.h.

**FRENCH**

- 009:113 French Civilization  
  3 s.h.

**GERMAN**

- 13E:080 King Arthur Through the Ages  
  3 s.h.

**HISTORY**

- 16E:051 Colloquium for History Majors (European) (when topic is medieval)  
  3 s.h.
- 16E:109 Medieval Civilization I  
  3 s.h.
- 16E:110 Medieval Civilization II  
  3 s.h.
- 16E:111 Medieval Intellectual History 300-1150  
  3 s.h.
- 16E:112 Medieval Intellectual History 1150-1500  
  3 s.h.
- 16E:113 Economic and Social History of Medieval Europe  
  3 s.h.
Medieval Studies Courses

**162:101 Literature and Culture of the Middle Ages** 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 008:101.

**162:109 Medieval Civilization I** 3 s.h.
Europe from the decline of Roman empire to the eleventh century; cultural, political, economic, artistic and architectural foundations of Western civilization. Same as 16E:109.

**162:110 Medieval Civilization II** 3 s.h.
Europe from the eleventh century to the Italian Renaissance; cultural, political, economic, artistic, and architectural foundations of Western civilization. GE: Foreign Civilization & Culture. Same as 16E:110.
Microbiology

Head:  Michael A. Apicella

Professors:  Michael A. Apicella (Internal Medicine), Robert F. Ashman (Internal Medicine), Gail A. Bishop (Internal Medicine), John E. Butler, Steven Clegg, Charles D. Cox, Michael G. Feiss, John T. Harty, David M. Lubaroff (Urology), Linda L. McCarter, Paul B. McCray (Pediatrics), William Nauseef (Internal Medicine), Stanley Perlman (Pediatrics), Richard J. Roller, Paul Rothman (Internal Medicine), George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus, Jerrold P. Weiss (Internal Medicine), Mary E. Wilson (Internal Medicine).

Professors emeriti:  John Cazin Jr., David T. Gibson, Louis G. Hoffmann, William Johnson, Enich W. Six, Donald P. Stahly

Associate professors:  Lee-Ann Allen (Internal Medicine), Bradley D. Jones, John R. Kirby, Al J. Klingelhoth (Radiation Oncology), Wendy J. Maury, Steven M. Varga, David S. Weiss, Timothy L. Yahr

Associate professor emeritus:  Jose E. Rodriguez

Adjunct assistant professor:  Marcia L. Cordts

Adjunct lecturers:  Jennifer D. Boddicker, Linda M. Knudtson

Undergraduate degree:  B.S. in Microbiology

Undergraduate nondegree program:  Minor in Microbiology

Graduate degrees:  M.S., Ph.D. in Microbiology

Web site:  http://www.uiowa.edu/microbiology

Study in the Department of Microbiology is dedicated to the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant portion of contemporary biochemical research employs microbiological and immunological methods.

Current research is making theoretical and practical advances concerning microbial species and viruses that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

The Department of Microbiology offers degree programs for undergraduates and for graduate students and administers the academic curriculum at both levels. The College of Liberal Arts and Sciences grants undergraduate degrees in microbiology and oversees undergraduate academic policy relating to the student record. The Graduate College grants graduate degrees in microbiology.

Undergraduate Program

The Department of Microbiology offers a Bachelor of Science and a minor in microbiology.

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. Graduates find employment opportunities in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies). Those who pursue advanced degrees have more advanced career opportunities in these same areas as well as in college and university teaching.

Bachelor of Science

The Bachelor of Science in microbiology requires a minimum of 120 s.h., including 64 s.h. of work for the major (21 s.h. in microbiology and 43 s.h. in supporting course work). Students also must complete the College of Liberal Arts and Sciences General Education Program.

The required 21 s.h. of microbiology must include at least 12 s.h. earned in University of Iowa courses numbered 061:147 Survey of Immunology and above, except 061:164 Nursing Microbiology; students may count 061:218 Microscopy for Biomedical Research toward the requirement but not 061:220 Advanced Microscopy Biomedical Research. No more than 2 s.h. of 061:161 Undergraduate Research in Microbiology (or 061:171 Honors Undergraduate Research in Microbiology for honors students) and no more than 2 s.h. of 061:163 Seminar: Microbiology may be counted toward the requirement. In order to take microbiology courses more advanced than 061:157 General Microbiology, students must earn a grade of C or higher in 061:157 General Microbiology and must have the instructor’s consent. The supporting science and mathematics course work required for the major may not be taken pass/nonpass.

Students must include 061:163 Seminar: Microbiology (2 s.h.) in the required 21 s.h. of microbiology; they must take the course for credit once during their last two semesters before graduation, but they are encouraged to take it for 0 s.h. during other semesters, once they have completed 061:157 General Microbiology.
In addition to the required 21 s.h. of microbiology, the major requires supporting course work as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:010-002:011</td>
<td>Principles of Biology I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>004:011-004:012</td>
<td>Principles of Chemistry I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>004:121-004:122</td>
<td>Organic Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>004:141</td>
<td>Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>029:011-029:012</td>
<td>College Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>099:120</td>
<td>Biochemistry and Molecular Biology I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:130</td>
<td>Biochemistry and Molecular Biology II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:016</td>
<td>Calculus for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:025</td>
<td>Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

In addition, the following courses may be recommended for some students.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>08N:080</td>
<td>Nonfiction Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

**Before the third semester begins:** 002:010 Principles of Biology I; 004:011 Principles of Chemistry I, and 004:012 Principles of Chemistry II; an approved calculus class; and at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** 002:011 Principles of Biology II; 004:121 Organic Chemistry I, 004:122 Organic Chemistry II, and 004:141 Organic Chemistry Laboratory; 061:157 General Microbiology; and at least one-half of the semester hours required for graduation

**Before the seventh semester begins:** five more courses in the major and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** another 10-12 s.h. of course work

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining required General Education courses, and a sufficient number of semester hours to graduate

**Honors**

Microbiology majors who are members of the University of Iowa Honors Program may enroll in the honors program in microbiology. Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33. Microbiology honors students also must maintain a g.p.a. of at least 3.33 in microbiology courses. The program requires 25 s.h. of course work in microbiology, including 6 s.h. in 061:171 Honors Undergraduate Research in Microbiology, which introduces students to experimental research. At the end of the research, students present written and oral reports. Students who successfully complete these requirements receive the B.S. with honors.

**Minor**

The minor in microbiology requires a minimum of 15 s.h. in microbiology courses, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, courses numbered 061:147 Survey of Immunology and above, except 061:164 Nursing Microbiology, are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 2 s.h. earned in 061 061:161 Undergraduate Research in Microbiology or 061:171 Honors Undergraduate Research in Microbiology, and 2 s.h. earned in 061:163 Seminar: Microbiology, toward the minor. They also may count 061:218 Microscopy for Biomedical Research, but not 061:220 Advanced Microscopy Biomedical Research.

**Graduate Programs**

The Department of Microbiology offers a Master of Science and a Doctor of Philosophy in microbiology. Graduate
study in the department is designed to help students become highly qualified in microbiology research and teaching. Admitted graduate students usually pursue the Ph.D.

Graduate study is offered in six subdisciplines: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several areas involve interdisciplinary training both within and outside the department, so students gain broad experience during their course of study. Students also may pursue interdisciplinary Ph.D. programs in genetics, immunology, and molecular and cellular biology.

During their first year, students rotate in three laboratories of their choice and are advised by the Graduate Student Advisory Committee. At the end of the first year, they choose a research supervisor who chairs their advisory committee. The committee provides intellectual and research guidance for the student's training.

The Department of Microbiology cooperates with other University of Iowa departments to give students ample access to diverse course offerings, seminars, and research programs. For example, microbiology students may participate in courses and seminars in immunology, genetics, molecular and cellular biology, biocatalysis/biotechnology, and electron microscopy.

All students admitted to advanced degree programs are expected to assist in departmental teaching.

Master of Science

The Master of Science in microbiology requires a minimum of 30 s.h. of graduate credit. M.S. students are required to earn a minimum of 12 s.h. in microbiology courses chosen from three of the department's six subdisciplines. They may substitute a course they have already taken (at The University of Iowa or elsewhere) for a course requirement, with the M.S. advisory committee's approval. Additional course requirements depend on students' interests and the advice of the examining committee.

Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be counted toward the 30 s.h. required for the Master of Science.

Doctor of Philosophy

The Doctor of Philosophy in microbiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students are required to earn a minimum of 15 s.h. of credit in graduate-level microbiology courses. They may substitute a course they have already taken (at The University of Iowa or elsewhere) for a course requirement, with the Ph.D. advisory committee's approval.

Students must pass a comprehensive examination before their sixth semester in the program and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and must have completed courses in biology, chemistry (inorganic and organic), mathematics including calculus, and physics. Those admitted with deficiencies must complete the relevant course work during their first year of graduate study. Admission is determined through a review and formal vote by the faculty. Preference is given to students applying for the Ph.D. program.

Facilities

The Department of Microbiology is situated on the University of Iowa health sciences campus, where it shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Molecular Physiology and Biophysics, and Pharmacology. Laboratory space and modern equipment are available for teaching and research.

Microbiology Courses

061:005 Microbes and Our World
Bacteria, viruses, and parasites and their role in shaping human health, industry, current affairs, history. 2 s.h.

061:103 Principles of Infectious Diseases
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: M.D. enrollment. 5 s.h.

061:104 Principles Infectious Diseases--Physician Assistant 5 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: Physician Assistant Program enrollment.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>061:112</td>
<td>Pharmacy Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: pre-pharmacy standing.</td>
<td></td>
</tr>
<tr>
<td>061:113</td>
<td>Dental Microbiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: D.D.S. enrollment.</td>
<td></td>
</tr>
<tr>
<td>061:147</td>
<td>Survey of Immunology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Major features of the evolutionary, ontogenic, and comparative development of innate and adaptive immune systems and their functions at the cellular and molecular levels. Pre- or corequisite: biochemistry.</td>
<td></td>
</tr>
<tr>
<td>061:157</td>
<td>General Microbiology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td></td>
<td>Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 002:010 and 002:011. Corequisite: 004:121.</td>
<td></td>
</tr>
<tr>
<td>061:159</td>
<td>Pathogenic Bacteriology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td></td>
<td>Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Prerequisites: grade of C or higher in 061:157 and consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>061:160</td>
<td>Microbial Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180. Prerequisite: grade of C or higher in 061:157.</td>
<td></td>
</tr>
<tr>
<td>061:161</td>
<td>Undergraduate Research in Microbiology</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Experimental research under faculty supervision. Prerequisites: grade of C or higher in 061:157 and consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>061:163</td>
<td>Seminar: Microbiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Current topics in microbiology, immunology. Prerequisite: grade of C or higher in 061:157.</td>
<td></td>
</tr>
<tr>
<td>061:164</td>
<td>Nursing Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Overview of bacteria, viruses, and eukaryotic microorganisms that cause human disease; microbial structure, growth control and reproduction; immunology in the context of host defense mechanisms. Prerequisite: pre-nursing student standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.</td>
<td></td>
</tr>
<tr>
<td>061:168</td>
<td>Introduction to Animal Viruses</td>
<td>3-5 s.h.</td>
</tr>
<tr>
<td></td>
<td>Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods in basic, clinical, and molecular virology. Prerequisites: grade of C or higher in 061:157 and consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>061:170</td>
<td>Microbial Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Genetics of bacteria, bacteriophages; laboratory supplement in 061:175. Prerequisite: grade of C or higher in 061:157 or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>061:171</td>
<td>Honors Undergraduate Research in Microbiology</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.33.</td>
<td></td>
</tr>
<tr>
<td>061:175</td>
<td>Microbial Genetics Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Basic principles of genetic analysis of bacteria and bacteriophage. Prerequisite: consent of instructor. Pre- or corequisite: 061:170.</td>
<td></td>
</tr>
<tr>
<td>061:179</td>
<td>Bacterial Diversity</td>
<td>3-5 s.h.</td>
</tr>
<tr>
<td></td>
<td>Analysis of bacteria from varied habitats; emphasis on the physiological basis and molecular characteristics of diversity. Corequisite: 061:170.</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>061:180</td>
<td>Microbial Physiology Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>061:190</td>
<td>Web-Based Nursing Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>061:201</td>
<td>Graduate Immunology I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>061:202</td>
<td>Graduate Immunology II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>061:207</td>
<td>Advanced Topics in Immunology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>061:217</td>
<td>Integrated Topics in Infectious Diseases</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>061:218</td>
<td>Microscopy for Biomedical Research</td>
<td>arr.</td>
</tr>
<tr>
<td>061:220</td>
<td>Advanced Microscopy Biomedical Research</td>
<td>arr.</td>
</tr>
<tr>
<td>061:227</td>
<td>Advanced Topics in Microbiology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>061:247</td>
<td>Graduate Survey of Immunology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>061:259</td>
<td>Graduate Pathogenic Bacteriology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>
061:260 Graduate Microbial Physiology
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:280.

061:261 Graduate Research in Microbiology
Prerequisites: microbiology graduate standing and consent of instructor.

061:263 Graduate Student Research Seminar
Presentation of thesis work in progress. Prerequisite: microbiology graduate standing or consent of instructor.

061:264 Directed Study in Microbiology
Prerequisites: microbiology graduate standing and consent of instructor.

061:265 Topics in Virology Literature
Papers of current interest in primary virology literature. Prerequisite: consent of instructor.

061:267 Graduate Introduction to Animal Viruses
Basic physical, chemical, biological properties of animal viruses, their association with human diseases; optional laboratory with emphasis on methods in basic, clinical, and molecular virology; discussion topics in the primary literature. Prerequisites: grade of C or higher in 061:157 or equivalent, and consent of instructor.

061:268 Biology and Pathogenesis of Viruses
Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: 061:168 or 061:267 or equivalent, and biology major.

061:270 Graduate Microbial Genetics
Genetics of bacteria, bacteriophages; supplementary laboratory work in 061:271.

061:271 Graduate Microbial Genetics Laboratory
Basic principles of genetic analysis in bacteria. Prerequisite: consent of instructor. Pre- or corequisite: 061:270.

061:275 Perspectives in Biocatalysis

061:279 Graduate Bacterial Diversity
Analysis of bacteria from varied habitats; emphasis on the physiological basis and molecular characteristics of diversity.

061:280 Graduate Microbial Physiology Laboratory
Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor.

061:299 Mechanisms of Parasitism Journal Club
Reviews of recent publications in molecular parasitology research and thesis research by training grant or journal club students. Same as 142:299.
The University of Iowa School of Music is prominent in a fine arts community of international repute. It has long been recognized as one of the excellent university-based schools of music in the United States.

The school's on-campus enrollment of approximately 470 music majors is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained artist-teachers in each area of specialization and scholars of international distinction. Faculty ensembles in residence include the Iowa Woodwind Quintet, the Iowa Brass Quintet, and the Maia String Quartet. Private lessons with faculty members are offered in all band and orchestra instruments, voice, piano, and organ.

The school's undergraduate curricula offer all qualified students, whether music majors or nonmajors, the opportunity for further study of music. In addition to its comprehensive course offerings for majors, the school provides a substantial selection of courses especially recommended for nonmajors (see "Courses for Nonmajors").

The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities and for careers in performance and music therapy.

The School of Music is a charter member of the National Association of Schools of Music. The requirements for entrance and for graduation are in accordance with the published standards of the National Association of Schools of Music.

The department is one of four academic units that make up the Division of Performing Arts.

### Undergraduate Programs

The school offers the Bachelor of Music, a Bachelor in Arts in music, and a minor in music. It also participates in offering the Certificate in Performing Arts Entrepreneurship, offered through the Division of Performing Arts.

The Bachelor of Music program offers concentrations in composition, music therapy, and performance; a second emphasis in jazz studies may be added to the performance concentration. Professional certification in music education and music therapy are available only through the B.M.

The Bachelor of Arts is a nonprofessional degree for students who are not planning careers as musicians or for those who wish to pursue a double major or earn more than one bachelor's degree.

All undergraduate enrollments require School of Music approval. Entering first-year and transfer students who plan to major in music must be accepted into a performance area through audition either in person or by recording before they register. Students who plan to major in composition also must submit examples of creative work; for details, see "Composition Concentration" below. All entering students must complete a theory diagnostic exam and a piano proficiency exam to determine appropriate placement in related courses.

Transfer students admitted to the School of Music must complete a minimum of one year of applied music (lower- or upper-level) and one year of major ensemble at The University of Iowa in order to earn a degree in music. Transfer students who have not completed the equivalent of the four-semester sequence of Musicianship and Theory I-IV (025:002 Musicianship and Theory I, 025:003 Musicianship and Theory II, 025:004 Musicianship and Theory III, and 025:005 Musicianship and Theory IV) must complete a theory diagnostic exam to determine appropriate placement in the musicianship and theory sequence. Transfer students who have not completed the equivalent of two semesters of class piano or a piano proficiency exam must meet piano proficiency requirements at The University of Iowa.
Bachelor of Music

The Bachelor of Music requires a minimum of 120 s.h.; many students earn more than 120 s.h. in fulfilling the requirements for their majors—for instance, those who choose the music therapy concentration or seek teacher certification. The College of Liberal Arts and Sciences maximum hours rule does not apply to the Bachelor of Music, so B.M. students may count more than 50 s.h. of course work in music toward the degree. All students must complete the College of Liberal Arts and Sciences General Education Program.

The program offers concentrations in composition, music therapy, and performance; a second emphasis in jazz studies may be added to the performance concentration. Bachelor of Music students may not choose guitar as their major instrument, and Bachelor of Arts students may not transfer to the B.M. program with guitar as their major instrument.

Students seeking professional certification in music education or music therapy should enroll in the B.M. program.

The Bachelor of Music requires the following School of Music course work.

GENERAL COURSE REQUIREMENTS

025:001 Fundamentals of Music for Majors (or successful completion of the undergraduate theory examination) 3 s.h.
025:071-025:072 Group Instruction in Piano I-II (or successful completion of proficiency exams I and II) 2 s.h.

Registration in 025:071 Group Instruction in Piano I and 025:072 Group Instruction in Piano II is corequisite with 025:002, 025:003, and 025:005. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.

025:074 Recital Attendance (six semesters) 6 s.h.

Six semesters of 025:074 Recital Attendance are required for all B.M. students, except music therapy students, who are required to take four semesters. Transfer students should plan to enroll in this course each of their remaining semesters, or until the requirement is met.

025:107 Techniques of Conducting 2 s.h.
025:144 History of Music I (western music of the Middle Ages, Renaissance, and Baroque) 3 s.h.
025:146 History of Music II (western music 1750-present) 3 s.h.
025:154 Senior Recital 1 s.h.

To complete the senior recital, students must have achieved upper-level applied status or be enrolled in upper-level applied music courses (see "Applied Music"). Music therapy students may complete a senior recital or a senior research project. Composition students substitute 025:099 Bachelor's Thesis for the senior recital. The senior recital, research project, or thesis must be completed at The University of Iowa.

One of these:
025:080 Jazz Cultures in America and Abroad 3 s.h.
025:103 World Music 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
025:141 History of Jazz 3 s.h.
025:178 Music, Culture, and Identity 3 s.h.

At least 3 s.h. from these:
025:101 Introduction to Improvisation 3 s.h.
025:102 Intermediate Jazz Improvisation 2 s.h.
025:117 Arranging for Band 2 s.h.
025:118 Jazz Theory at the Piano 2 s.h.
025:145 Counterpoint Before 1600 3 s.h.
025:147 Counterpoint After 1600 3 s.h.
025:148 Instrumentation 2 s.h.
Applied Music

Four years of applied music are required. Instruction is provided on two levels, lower and upper. Students must achieve upper-level status before they may present the senior recital. Readiness for upper-level applied music is determined by a jury examination in the area. The eighth semester of applied music may be waived for students who are enrolled in the Teacher Education Program and are student teaching. Students are allowed a maximum of six semesters (not including summer) in lower-level applied instruction. Those who want to continue lessons beyond the maximum allowable lower-level registration must do so under the nonmajor category.

Composition students are required to take 6 s.h. of lower-level applied music and 2 s.h. of secondary piano.

Music therapy students who complete a senior research project rather than a senior recital are required to take three years of lower-level applied music.

Ensemble Participation

Eight semesters of major ensemble participation are required. Students normally enroll in major ensemble participation during consecutive semesters, beginning early in their degree work, to ensure completion of the requirement in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director. String students participate in University Orchestra and Chamber Orchestra. Wind and percussion students participate in the Symphony Band/Concert Band/University Band. Voice students participate in Camerata Singers, University Choir, Kantorei, and/or University Chorale. Keyboard students may substitute accompaniment for major ensemble participation for two semesters during their junior and/or senior years, with their major applied teacher's consent. Composition students may, with their advisor's consent, substitute two semesters of other ensembles during their junior and/or senior year.

Music therapy students who complete a senior research project rather than a senior recital are required to complete 6 s.h. of major ensemble participation.

Any student who wants to request adjustment of the major ensemble requirement must submit his or her request in writing to a review committee consisting of the ensemble director(s) involved, the studio instructor, and the associate director for undergraduate studies.

Major ensembles are as follows.

- 025:142 Camerata Singers 1 s.h.
- 025:181 University Choir 1 s.h.
- 025:185 Kantorei 1 s.h.
- 025:191 University Chorale (Women's Chorale) 1 s.h.
- 025:192 Orchestra 1 s.h.
- 025:194 Symphony Band/Concert Band/University Band 1 s.h.

Electives

Students may take advanced electives in performance (including chamber music and piano accompaniment), theory, composition, music education, music therapy, music history, diverse music cultures, music literature, conducting, and orchestration.

Performance Concentrations

A performance concentration is available in each of the orchestral areas—strings, brass, woodwinds, and percussion—and in voice, piano, and organ. Students must take at least an additional 17 s.h. beyond the School of Music general course requirements. This course work includes required courses and electives unique to each performance area. Course listings for each of the respective areas are available from the School of Music academic office. For degree requirement checklists, see http://www.uiowa.edu/~music/current/degreeprogram.htm.
JAZZ STUDIES EMPHASIS

Students with a performance concentration may add a second emphasis in jazz studies. To be admitted to the jazz studies emphasis, students must audition after they complete their first year. Students admitted to the emphasis are assigned to the jazz studies advisor in addition to their regular faculty advisor.

Senior recital and recital attendance requirements are the same as those for the Bachelor of Music. In addition to satisfying all course requirement for the B.M., jazz studies emphasis students must complete 21 s.h. of jazz course work. Many jazz studies courses fulfill other B.M. course requirements, including music electives.

Music Therapy Concentration

Admission to the music therapy concentration is based on successful completion (grade of C-plus or higher) of 025:087 C 025:087 Orientation to Music Therapy. In addition to the core courses in music therapy listed below, specific courses are required in biology, psychology, and music.

A six-month internship in an approved off-campus clinical facility is required. Following successful completion of the internship, students are eligible to take the board certification examination in music therapy.

Specific course requirements for music therapy are as follows.

All of these:

07S:144 Psychology of Music 2 s.h.
07S:149 Introduction to Music Research 2 s.h.
025:017 Secondary Performance--Voice 1 s.h.
025:071 Group Instruction in Piano I 1 s.h.
025:072 Group Instruction in Piano II 1 s.h.
025:073 Group Instruction in Piano III 1 s.h.
025:074 Recital Attendance (four semesters required) 4 s.h.
025:087 Orientation to Music Therapy 2 s.h.
025:091 Music Foundations in Therapy I 2 s.h.
025:092 Music Foundations in Therapy II 2 s.h.
025:094 Music Therapy Practicum (three semesters, for 1, 2, and 2 s.h., respectively) 5 s.h.
025:096 Music Techniques in Special Education and Recreation 3 s.h.
025:101 Introduction to Improvisation 3 s.h.
025:138 Music Therapy Techniques: Atypical Children 3 s.h.
025:139 Music Therapy Techniques: Adult Clients 3 s.h.
025:140 Internship in Music Therapy 2 s.h.

One of these:

025:007 Garage Band: The Basics 2 s.h.
025:117 Arranging for Band 2 s.h.
025:148 Instrumentation 2 s.h.

One of these:

025:098 Senior Project in Music Therapy 1 s.h.
025:154 Senior Recital 1 s.h.

Music therapy students who elect the senior recital option must take four years of applied music and attain upper-level status; they also must take 8 s.h. of major ensemble participation. Those who elect the senior research project option must take three years of applied music and 6 s.h. of major ensemble.

Composition Concentration

The composition concentration is open to students who have been admitted to a performance area in the School of Music. Before admission to the concentration, students normally must complete the four-semester sequence Musicianship and Theory I-IV (025:002 Musicianship and Theory I, 025:003 Musicianship and Theory II, 025:004 Musicianship and Theory III, and 025:005 Musicianship and Theory IV); 025:005 Musicianship and Theory IV is a prerequisite for 025:179 Composition (undergraduate composition lessons).
Applicants to the composition concentration must submit a portfolio of creative work to the composition faculty for evaluation and acceptance into the program. Students who wish to prepare a portfolio may register for 025:036 Secondary Performance--Composition.

Composition students must satisfy the degree requirements stated under "Bachelor of Music." The composition concentration requires additional course work in composition and music theory; contact the School of Music or visit http://www.uiowa.edu/~music/current/undergraduate.htm.

The Bachelor's Thesis (025:099) replaces the recital required of applied music students. It consists of one or more compositions, approved by a committee of three faculty members and performed on regularly scheduled School of Music recitals.

**B.M. with Teacher Licensure**

Undergraduate students seeking teacher certification must be enrolled in a Bachelor of Music program in performance. Teacher licensure in music education is earned by completing the appropriate licensure program (e.g., band, choral, string) in addition to the School of Music requirements for the Bachelor of Music. Students must be admitted to the College of Education's Teacher Education Program (TEP) before they may take required professional education courses. See "Admission to Teacher Education Program" below.

Music TEP students must maintain a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 in all course work, and a cumulative g.p.a. of at least 3.00 in course work for the music major. They must have a cumulative g.p.a. of at least 2.70 at the time of recommendation for licensure.

Music TEP students must complete at least 40 s.h. at The University of Iowa in order to be recommended for licensure. For more information, see Teaching and Learning (College of Education) in the Catalog.

All students must complete the College of Liberal Arts and Sciences General Education Program. In addition to the B.M. requirements in music, TEP students must take General Education courses that fulfill licensure requirements. The certification program requires music methods and techniques courses, professional education courses, and student teaching.

The following courses are required for all music TEP students.

One college-level math course (excluding 22M:001, 22M:002, 22M:003)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07B:180</td>
<td>07B:180 Human Relations for the Classroom Teacher</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07E:100/07S:100</td>
<td>07E:100/07S:100 Foundations of Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07E:102/07S:102</td>
<td>07E:102/07S:102 Technology in the Classroom</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>07E:145</td>
<td>07E:145 Methods and Materials: General Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07E:192</td>
<td>07E:192 Special Area Student Teaching</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>07P:075</td>
<td>07P:075 Educational Psychology and Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:096</td>
<td>07S:096 Introduction and Practicum: Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:140/025:164</td>
<td>07S:140/025:164 Band Methods and Materials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:143/025:105</td>
<td>07S:143/025:105 Instrumental Techniques (taken three times)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>025:100</td>
<td>025:100 Class Strings (Section 001)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:182</td>
<td>025:182 Marching Band Techniques</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:193</td>
<td>025:193 Marching Band</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:196</td>
<td>025:196 Jazz Band Techniques</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:095</td>
<td>025:095 Sight Reading Jazz</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**BRASS, WOODWIND, AND PERCUSSION STUDENTS**

Brass, woodwind, and percussion students in the TEP participate in 025:193 Marching Band for one semester. Exceptions must be approved by the head of the music education area.

The following courses are required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07S:140/025:164</td>
<td>07S:140/025:164 Band Methods and Materials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:143/025:105</td>
<td>07S:143/025:105 Instrumental Techniques (taken three times)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>025:100</td>
<td>025:100 Class Strings (Section 001)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:182</td>
<td>025:182 Marching Band Techniques</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:193</td>
<td>025:193 Marching Band</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:196</td>
<td>025:196 Jazz Band Techniques</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:095</td>
<td>025:095 Sight Reading Jazz</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
or

025:197 Jazz Band 1 s.h.

STRING STUDENTS

String majors in the TEP take one semester of secondary performance on each of three string instruments other than their primary instrument (total of 3 s.h.).

The following courses are required.

- 025:100 Class Strings (Section 002, taken three times) 3 s.h.
- 025:114 Introduction to Band Instruments 2 s.h.
- 07S:145/025:108 Instrumental Conducting 3 s.h.
- 07S:150/025:112 String Methods and Materials 3 s.h.

VOCAL AND KEYBOARD STUDENTS


The following courses are required.

- 07S:147/025:109 Choral Methods 3 s.h.
- 07S:148/025:110 Choral Conducting and Literature 3 s.h.
- 025:073 Group Instruction in Piano III 1 s.h.
- Secondary performance 1-2 s.h.

KEYBOARD STUDENTS (NONVOCAL)

Keyboard students who plan to teach in nonvocal areas complete the requirements in either the brass-woodwind-percussion area or the string area, as stated above.

Admission to Teacher Education Program

Application forms for admission to the Teacher Education Program are available from the Office of Teacher Education and Student Services at the College of Education. Application deadlines for the secondary Teacher Education Program are October 15 for entry the following spring and March 15 for entry the following fall. The Teacher Education Program in music accepts a limited number of applicants; meeting the minimum requirements (stated below) does not guarantee admission. Application also requires a proficiency exam and a personal statement.

Minimum requirements for admission to the music TEP are:

- admission to the School of Music;
- a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.70 at the time of admission to the program;
- a g.p.a. of at least 3.00 on all music course work;
- successful completion of 025:002-025:003 Musicianship and Theory I-II;
- completion of at least 33 s.h. of college credit;
- completion of a 10-hour volunteer practicum in a secondary school setting; and
- the PRAXIS I exam.

Bachelor of Arts

The Bachelor of Arts in music requires a minimum of 120 s.h., including 42-47 s.h. of work for the major. The B.A. program is designed for students who have strong abilities and interest in music but are not planning on a career as a musician, or who wish to pursue a double major or earn more than one bachelor's degree. Students must audition and be accepted into a performance area. They develop musicianship and performance skills and choose from a wide variety of music electives.

Students in many areas, from engineering and physics to history, art, and English, find that a B.A. in music is a good addition to their studies. Other students choose the B.A. in music to complement course work in business (especially the minor in business administration), foreign language and literature, or interdisciplinary fields such as American studies. Some students combine a B.A. in music with undergraduate preparation to study law or medicine.
All B.A. students must complete the College of Liberal Arts and Sciences General Education Program and satisfy all other requirements for graduation with a bachelor's degree. For more information, contact the School of Music and the Academic Advising Center.

The B.A. in music requires the following course work.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:001</td>
<td>Fundamentals of Music for Majors (or successful completion of the undergraduate theory examination)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:002-025:003</td>
<td>Musicianship and Theory I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>025:071-025:072</td>
<td>Group Instruction in Piano I-II (or successful completion of proficiency exams I and II)</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Registration for 025:071 Group Instruction in Piano I and 025:072 Group Instruction in Piano II is corequisite with 025:002 Musicianship and Theory I and 025:003 Musicianship and Theory II, unless exempted by proficiency exam. Transfer students should complete this requirement in their first year of residence, unless exempted by proficiency exam.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:074</td>
<td>Recital Attendance (two semesters)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Lower-level applied music</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Major ensemble (minimum of four semesters)</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

With approval, students may use 025:197 Jazz Band to satisfy the major ensemble requirement.

Two of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:141</td>
<td>History of Jazz</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:146</td>
<td>History of Music II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Performance electives (lower- or upper-level applied music, ensembles, or improvisation) 6 s.h.

At least 6 s.h. from these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:004</td>
<td>Musicianship and Theory III</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>025:005</td>
<td>Musicianship and Theory IV</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>025:103</td>
<td>World Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:104</td>
<td>Music of Latin America and the Caribbean</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:107</td>
<td>Techniques of Conducting</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:117</td>
<td>Arranging for Band</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:118</td>
<td>Jazz Theory at the Piano</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:141</td>
<td>History of Jazz</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:146</td>
<td>History of Music II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:145</td>
<td>Counterpoint Before 1600</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:155</td>
<td>Composition</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:231</td>
<td>Jazz Composition and Arranging</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:244</td>
<td>Transcription</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Music electives 6 s.h.

All music majors with scholarships must participate in a major ensemble and studio lessons each semester.

For a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" above.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

In addition to the requirements listed under the checkpoints, all students must complete 2 s.h. in applied music and 1 s.h. in a major ensemble each semester.

The Four-Year Graduation Plan is not available for music therapy and music education.

**Bachelor of Arts**

The Bachelor of Arts in music requires 42-47 s.h. in School of Music courses.
Before the third semester begins: 15-18 s.h. of course work in the major, including 025:002 Musicianship and Theory I, 025:003 Musicianship and Theory II, 025:071 Group Instruction in Piano I, and 025:072 Group Instruction in Piano II; and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: at least 23-32 s.h. of course work in the major and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: at least 33-41 s.h. of course work in the major and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: at least 40-46 s.h. of course work in the major.

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate.

Bachelor of Music

Students may apply more than 50 s.h. earned in School of Music courses toward the minimum 120 s.h. required for the B.M.

Before the third semester begins: 18 s.h. of course work in the major, including 025:002 Musicianship and Theory I, 025:003 Musicianship and Theory II, 025:071 Group Instruction in Piano I, and 025:072 Group Instruction in Piano II; and at least one-quarter of the semester hours required for graduation.

Before the fifth semester begins: at least 34 s.h. of course work in the major, including 025:004 Musicianship and Theory III and 025:005 Musicianship and Theory IV, and at least one-half of the semester hours required for graduation.

Before the seventh semester begins: at least 50 s.h. of course work in the major and at least three-quarters of the semester hours required for graduation.

Before the eighth semester begins: at least 56 s.h. of course work in the major.

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate.

Honors

Exceptional music majors who are members of the University of Iowa Honors Program and maintain a music g.p.a. of at least 3.80 may enroll in the School of Music's honors program. Membership in the Honors Program requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

Throughout undergraduate residence, honors music students may enroll in honors sections of courses in the school and in the College of Liberal Arts and Sciences. They also may seek honors designation for any course, with the instructor's consent. All honors course work must be approved by the School of Music honors advisor at the beginning of the semester in which the work is to be done.

Honors students with junior or senior standing and a music g.p.a. of at least 3.80 may undertake work leading to the B.M. or B.A. with honors. Graduation with honors is awarded after completion of 6-8 s.h. of honors work; students must earn a minimum of 3 s.h. in 025:097 Honors in Music. Honors projects for which credit is given in 025:097 Honors in Music include honors performances (solo and/or ensemble); honors compositions (or transcriptions, orchestrations, arrangements); and honors essays, research papers, editions, or translations. A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses, nor may they be required for graduation (e.g., 025:154 Senior Recital).

Honors students in music are encouraged to take graduate-level courses. Advanced courses in music history, music theory, and languages are particularly recommended. Consult the School of Music honors advisor for more information.

Minor

The minor in music requires a minimum of 15 s.h. in music courses, including 12 s.h. in advanced courses and 8 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work toward the minor may not be taken pass/nonpass.

Work for the minor must include one music theory course, one music history course, and 3 s.h. of performance courses (applied instruction or ensembles). Auditions with the instructor are required for admission to the lower-level applied instruction courses; admission to the theory courses is determined by results on the theory placement exam or completion of 025:001 Fundamentals of Music for Majors. Advanced courses include those numbered 025:100 Class Strings and above; courses in the four-semester sequence Musicianship and Theory I-IV (025:002 Musicianship and Theory I, 025:003 Musicianship and Theory II, 025:004 Musicianship and Theory III, and 025:005 Musicianship and
Theory IV); and all lower-level applied instruction courses for majors.

Students may count a maximum of 7 s.h. of transfer credit up to 7 s.h. toward the music theory, music history, and elective requirements. No transfer credit may be counted toward music performance requirements.

Courses for Nonmajors

Courses recommended for nonmajors who are interested in music include the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:007</td>
<td>Garage Band: The Basics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:009</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:010</td>
<td>Fundamentals of Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:013</td>
<td>Concepts and Contexts of Western Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:014</td>
<td>Great Musicians</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:059</td>
<td>Performance Instruction for Nonmajors</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:063</td>
<td>Survey of World Percussion</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:064</td>
<td>Recital Attendance for Non-Majors</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:080</td>
<td>Jazz Cultures in America and Abroad</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:082</td>
<td>Group Piano I: Non-Music Majors</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:083</td>
<td>Introduction to Hand Drumming</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:084</td>
<td>Group Piano II: Non-Music Majors</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:103</td>
<td>World Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:104</td>
<td>Music of Latin America and the Caribbean</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:137</td>
<td>World of the Beatles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:141</td>
<td>History of Jazz</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:146</td>
<td>History of Music II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:166</td>
<td>Popular Music in the United States</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:167</td>
<td>Movement for Performers</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>025:178</td>
<td>Music, Culture, and Identity</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Group Piano I: Non-Music Majors (025:082) is available for nonmajors who wish to develop elementary keyboard skills for personal musical growth and enjoyment.

Participation in School of Music ensembles is open to all University students with the ensemble director's approval (for a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" above).

Applied music instruction is offered to nonmajors as instructors are available. Nonmajors interested in registering for 025:059 Performance Instruction for Nonmajors should consult music advisors.

National Honor Society

The School of Music sponsors a chapter of Pi Kappa Lambda, the national music honor society. Students of exceptional ability are recommended for membership by faculty members. For more information, consult the School of Music honors advisor.

Financial Support

A number of music performance-based merit scholarships are available to qualified undergraduate music majors. All music majors with scholarships must enroll in a major ensemble and studio lessons each semester. For information, write to the School of Music.

Graduate Programs

The School of Music offers four graduate degrees: Master of Arts, Master of Fine Arts, Doctor of Philosophy, and Doctor of Musical Arts. It also offers a graduate theory pedagogy minor and the graduate Certificate in Sacred Music.

Applicants to any of the graduate programs must audition and/or submit supporting materials in their area of concentration in order to be considered for admission. Information about Graduate College admission and curriculum requirements for each area in the School of Music is available from the school's academic office or at http://www.uiowa.edu/~music.

For detailed information about Graduate College admission and policies, see the Manual of Rules and Regulations of
the Graduate College or Graduate College in the Catalog.

ADVISORY EXAMINATIONS

Before they register, entering graduate students must take two School of Music advisory examinations: one in music theory, and one in music history and literature. M.A. students in music therapy are not required to take the advisory examination in music theory or music history. These examinations are given at the beginning of the fall semester on the two days (except Sunday) immediately preceding the opening of classes, and at the beginning of the spring and summer sessions by appointment. A leaflet describing the general content of these tests is available from the School of Music academic office.

ENSEMBLE PARTICIPATION

Graduate students in the performance and pedagogy tracks of all graduate programs are required to complete four semesters of major ensemble participation. Students normally enroll in major ensemble participation during consecutive semesters beginning early in their degree work, to ensure completion of the major ensemble requirements in a timely manner. Ensemble assignments are made at the discretion of the major teacher and ensemble director. For a list of major ensembles, see "Ensemble Participation" under "Bachelor of Music" above.

Keyboard majors may substitute piano accompanying for major ensemble participation, at their major applied teacher's discretion. Jazz studies majors substitute 025:197 Jazz Band for major ensemble participation. Theory, composition, music education, and music therapy majors have no major ensemble requirement. The M.A. in musicology requires one semester of any ensemble.

Any student who wants to request adjustment of this requirement must submit his or her request in writing to a review committee consisting of the major ensemble director(s) involved, the major teacher, and the School of Music associate director for graduate studies.

Master of Arts

The Master of Arts in music requires a minimum of 30-37 s.h. of graduate credit. The M.A. in performance, conducting, jazz studies, composition, music theory, musicology, music therapy, and music education requires a recital, capstone project, or thesis. Performance majors present a public recital in place of a written thesis. Music therapy majors complete a capstone research project. Jazz studies majors present a public recital and a separate performance project. The Master of Arts in music education is offered with thesis and nonthesis options. All M.A. programs--except music therapy and music education--must include the following requirements. For degree requirement checklists, see http://www.uiowa.edu/~music/current/degreqprograms.htm.

Common M.A. Requirements

025:321 Introduction to Graduate Study in Music 2 s.h.

MUSIC THEORY

Students must earn 6 s.h.

025:240 Basic Analytical Techniques (unless exempt by advisory exam) 3 s.h.

Students exempted from 025:240 Basic Analytical Techniques through the advisory examination in music theory must substitute an additional theory elective chosen from the following.

025:145 Counterpoint Before 1600 3 s.h.
025:147 Counterpoint After 1600 3 s.h.
025:247 Post-Tonal Analysis 3 s.h.
025:249 Tonal Analysis 3 s.h.
025:256 Special Topics in Theory and Analysis 3 s.h.

Students also must choose one elective from these:

025:145 Counterpoint Before 1600 3 s.h.
025:147 Counterpoint After 1600 3 s.h.
025:241 History of Music Theory I 3 s.h.
025:242 History of Music Theory II 3 s.h.
025:247 Post-Tonal Analysis 3 s.h.
025:249 Tonal Analysis 3 s.h.
025:256 Special Topics in Theory and Analysis 3 s.h.
025:311 Advanced Post-Tonal Theory and Analysis 3 s.h.
025:312 Advanced Tonal Theory and Analysis 3 s.h.

MUSIC HISTORY

Students must earn 6 s.h.

025:301 Advanced History and Literature of Music I 3 s.h.
025:302 Advanced History and Literature of Music II 3 s.h.

Students exempted from 025:301 Advanced History and Literature of Music I and/or 025:302 Advanced History and Literature of Music II through the advisory examination in music history must substitute a music history course from the following list for each of the exemptions.

025:303 Medieval Music 3 s.h.
025:304 Renaissance Music 3 s.h.
025:305 Seventeenth-Century Music 3 s.h.
025:306 Eighteenth-Century Music 3 s.h.
025:307 Nineteenth-Century Music 3 s.h.
025:308 Music 1900-1945 3 s.h.
025:309 Music 1945-Present 3 s.h.
025:310 American Music 3 s.h.
025:313 Major Composers 3 s.h.
025:314 Genres of Music 3 s.h.
025:318 Topics in Ethnomusicology 3 s.h.
025:319 Foundations of Ethnomusicology 3 s.h.
025:323 Medieval Music Notations 3 s.h.
025:324 Renaissance Music Notations 3 s.h.
025:325 Music Editing 3 s.h.
025:330 Seminar in Musicology 3 s.h.
025:331 Performance Practices of Medieval and Renaissance Music 3 s.h.

Master of Fine Arts

The Master of Fine Arts in music requires a minimum of 60 s.h. of graduate credit. It is designed for students of superior ability in instrumental or vocal performance. M.F.A. students present at least two full-length recitals or programs and must write an M.F.A. Thesis (025:401) -- a research paper of moderate length. The thesis may relate to some or all of the repertoire included on the recitals.

Students may earn a Master of Arts while working toward the Master of Fine Arts, but they must take two separate final examinations.

For degree requirement checklists, see http://www.uiowa.edu/~music/current/degreeprograms.htm.

Doctor of Philosophy

The Doctor of Philosophy in music requires a minimum of 72 s.h. of graduate credit. Ph.D. concentration areas include composition, musicology, music education, music theory, and music literature. The music literature program is designed for students who already have achieved a professional level of musical performance. These students are required to audition in their major performance area.

Information about specific admission and curricular requirements for each area is available from the School of Music academic office.

Common Ph.D. Requirements

Ph.D. students in composition, musicology, music theory, and music literature must complete the course requirements for the M.A. (see "Common M.A. Requirements" above). They also must complete the following.

One or more additional music theory course(s) listed in the M.A. requirements

One or more additional course(s) in music history, chosen from those listed in the M.A. requirements

One of these:
Proficiency in one or more foreign languages is required for Ph.D. students in composition, musicology, music theory, and music literature. Ph.D. students in music education should contact the School of Music for requirements.

**Doctor of Musical Arts**

Requirements for the D.M.A. in conducting and in performance and pedagogy are the same as for the Ph.D. (see "Common Ph.D. Requirements" under "Doctor of Philosophy" above), except that the D.M.A. requires three recitals or programs. At the performance area's discretion, a concerto performance with orchestra or other appropriate ensemble from the School of Music may be substituted for one of the recitals. Some performance areas allow one or more lecture recitals, with faculty approval. Singers may substitute one major opera role or one major solo contribution to an orchestra performance for one of their recitals. See the associate director of graduate programs for specific area requirements.

D.M.A. candidates also must complete a scholarly investigation of limited scope in a written essay or thesis.

**Certificate in Sacred Music**

The Certificate in Sacred Music requires 25 s.h. The certificate is an interdisciplinary graduate program with courses in sacred music, choral conducting and literature, keyboard, voice, religion, and art and art history. Students may earn the certificate while working toward a graduate degree. Individuals not enrolled in a graduate program also may complete the certificate, but they must be admitted to the Graduate College and have the consent of a faculty advisor. Successful completion of the certificate program is noted on the student's transcript.

**Theory Pedagogy Minor**

Any student admitted to a graduate degree program in the School of Music may earn the theory pedagogy minor by completing the following required courses.

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:145</td>
<td>Counterpoint Before 1600</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:147</td>
<td>Counterpoint After 1600</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Both of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:236</td>
<td>Music Theory Pedagogy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:237</td>
<td>Music Theory Colloquium (taken 2 times)</td>
<td>0-1 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>025:249</td>
<td>Tonal Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:312</td>
<td>Advanced Tonal Theory and Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

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<td>3 s.h.</td>
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<td>025:311</td>
<td>Advanced Post-Tonal Theory and Analysis</td>
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</table>

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<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:241</td>
<td>History of Music Theory I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:242</td>
<td>History of Music Theory II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:256</td>
<td>Special Topics in Theory and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:311</td>
<td>Advanced Post-Tonal Theory and Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:312</td>
<td>Advanced Tonal Theory and Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Financial Support

Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the academic office of the School of Music.

Resources, Facilities

Center for New Music

The Center for New Music is a vital component of the School of Music's composition program. Since its founding in 1966, the center has been both laboratory and showcase for late-20th and 21st-century music. It presents at least four concerts of contemporary works each academic season. It also provides a forum for visiting composers and other creative artists, bringing new music to a variety of outreach venues. Audition, rehearsal, and programming information is available at http://www.uiowa.edu/~cnm.

Rita Benton Music Library

The Rita Benton Music Library is currently located in the University's Main Library. The music library holds more than 70,000 scores, including chamber music sets; 50,000 books, including bound journals; 3,500 microforms, chiefly manuscripts and early printed books; and 28,000 media items in all formats. It receives about 300 journals. Its rare book division has particular strengths in 18th- and 19th-century music theory treatises and instrumental methods, and an outstanding collection of keyboard and chamber music by Ignaz Pleyel. The library also houses the Goldman Band Collection. Music manuscripts of the composer Phillip Greeley Clapp, a former director of the school, are housed in Special Collections & University Archives.

The library's large reference collection is supplemented by several online resources, including Music Index, IIMP, Grove Music Online, RILM, RISM, RIPM, WorldCat, and InfoHawk Catalog, the University's online library catalog. Online resources for streamed audio include Classical Music Library, Naxos Music Library, Naxos Jazz, African-American Song, Smithsonian Global Sound, and the Database of Recorded American Music (DRAM).

Materials circulate to University of Iowa faculty and students and to institutions that have reciprocal agreements with the University. Individuals not affiliated with the University may qualify for borrower's permits.

Music Courses

General

The following courses are especially appropriate for non-music majors. Other courses appropriate for nonmajors are 025:144 History of Music I and 025:146 History of Music II (see "Music History"); 025:080 Jazz Cultures in America and Abroad and 025:141 History of Jazz (see "Jazz Studies"); and most ensembles (see "Ensembles").

Instruction in 025:059 Performance Instruction for Nonmajors consists of a half-hour lesson per week. The course is offered on a fee-per-course basis, in addition to tuition. Students register under separate section numbers for different instruments.

025:007 Garage Band: The Basics 2 s.h.
Application of GarageBand software (Mac platform) using midi keyboards; composition and music theory for projects using drag-and-drop looping, multitrack recording, sound effects, mixing, importing music for composition. Prerequisites: prior musical experience (student can sing or play an instrument) and consent of instructor.

025:009 First-Year Seminar 1 s.h.
An aspect of performance, creativity, musical literature, or scholarship; seminar format with classroom participation, papers, projects, other assignments; may require attendance at lectures, rehearsals, or performances. Prerequisite: first- or second-semester standing.

025:010 Fundamentals of Music 3 s.h.
Music fundamentals through writing, listening, sightsinging, dictation, notation of pitch and rhythm, intervals, scales, key signatures, triads, and seventh chords. Offered by Saturday & Evening Classes. Prerequisite: non-music major.

025:013 Concepts and Contexts of Western Music 3 s.h.
Ideas, social and historical contexts, emergence of genres and styles, diverse performing traditions in music making of Europe and North America. GE: Fine Arts, Humanities.
025:014 Great Musicians
Lives and works of important composers, performers. GE: Fine Arts, Humanities.

025:059 Performance Instruction for Nonmajors
Bassoon, cello, clarinet, euphonium, flute, horn, oboe, organ, percussion, piano, saxophone, string bass, trombone, trumpet, tuba, viola, violin, or voice. Prerequisites: one year of instruction for piano and non-music major. GE: Fine Arts.

025:063 Survey of World Percussion
Percussion music explored through a selection of nonwestern musical and cultural traditions; hands-on experience learning to play instruments from a variety of musical genres; music of Cuba, Brazil, Africa, Trinidad, Asia, other areas.

025:064 Recital Attendance for Non-Majors
Musical experience through student, faculty recitals.

025:064 Recital Attendance
Prerequisite: music major.

025:082 Group Piano I: Non-Music Majors
Reading, technical study, chording, playing by ear, improvisation; for beginners. Prerequisite: non-music major. GE: Fine Arts.

025:083 Introduction to Hand Drumming
Hand drumming techniques indigenous to several Afro-Caribbean cultures; hands-on instruction and coaching on varied ethnic instruments, lectures, listening sessions.

025:084 Group Piano II: Non-Music Majors
Continuation of 025:082. Prerequisite: nonmusic major.

History of popular female musicians and the influence of their lyrics, music, and performances on American and British cultures; how women's musical careers have been influenced by civil rights, the British invasion (Beatles, Rolling Stones), second-wave feminism, postfeminism, Vietnam, counterculture, social injustice, music education, rock festivals, charity concerts.

025:103 World Music
Varied perspectives on the relationship of music and culture, drawing from musical cultures around the world. GE: Fine Arts, Foreign Civilization & Culture.

025:104 Music of Latin America and the Caribbean
Folk and popular musical traditions and their social contexts in Latin America, the Caribbean; listening skills; video/film screenings. GE: Fine Arts, Humanities.

025:106 Improvisation for Classical Musicians
Theory and practice in beginning nonjazz improvisation; development of aural and rhythmic skills, creation of rhythms and melodies, use of timbres and extended techniques in expression, development of instrumental technique for improvisation, practical understanding of harmony and form, experience in solo and accompaniment roles, creation of short pieces as vehicles for improvisation. Prerequisite: one year of music theory or consent of instructor.

025:111 Special Topics
One or more musical styles, genres, cultures, composers, or subjects.

025:137 World of the Beatles
How the Beatles' music was influenced by American pop music, the drug culture, and the Avant Garde, nonwestern instruments and philosophy, anti-war sentiments, and world politics, and so forth; Beatlemania's impact on British and American cultures and its role in opening Eastern Europe to the West. Same as 188:137.

025:166 Popular Music in the United States
Popular music and culture in the United States from early 20th century to present; basic musical style and performance analysis, social meaning and use.
025:167 Movement for Performers
Movement as support for sound production, artistic expression, and wellness; Bartenieff Fundamentals, Laban Movement Analysis, or principles of the Alexander Technique as methods of organizing and integrating body movement and expanding expressive range; studio course with practice, journal, observations, project applying movement skills to student's area of performance/study. Same as 049:105, 137:160, 188:167.

025:178 Music, Culture, and Identity
Use of music as marker of social identity; focus on popular music in the United States and interplay among Latino, African, and European-American musical cultures; listening skills.

Applied Music
Instruction consists of individual and/or class lessons, at the instructor's option, for a minimum of one hour per week (students register for 2 s.h.), or one half-hour per week (students register for 1 s.h.). Majors are required to attend weekly performance and pedagogy seminars in applied music. Offered on a fee-per-course basis, in addition to tuition. Repeatable.

Guitar instruction is offered only at the lower level. Enrollment in 025:043 Lower Level Guitar is limited to three Bachelor of Arts students. Students may not enroll in the Bachelor of Music program with guitar as their major instrument.

LOWER-LEVEL UNDERGRADUATE MAJORS

025:040 Lower Level Voice
025:041 Lower Level Piano
025:042 Lower Level Organ
025:043 Lower Level Guitar
Prerequisites: B.A. enrollment and audition.
025:044 Lower Level Violin
025:045 Lower Level Viola
025:046 Lower Level Cello
025:047 Lower Level String Bass
025:048 Lower Level Flute
025:049 Lower Level Oboe
025:050 Lower Level Clarinet
025:051 Lower Level Bassoon
025:052 Lower Level Saxophone
025:053 Lower Level Horn
025:054 Lower Level Trumpet
025:055 Lower Level Euphonium
025:056 Lower Level Trombone
<table>
<thead>
<tr>
<th>Code</th>
<th>Instrument</th>
<th>Arrangement</th>
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<tbody>
<tr>
<td>025:057</td>
<td>Lower Level Tuba</td>
<td></td>
</tr>
<tr>
<td>025:058</td>
<td>Lower Level Percussion</td>
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</tbody>
</table>

**Upper-Level Undergraduate Majors**

<table>
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<tr>
<th>Code</th>
<th>Instrument</th>
<th>Arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:119</td>
<td>Upper Level Voice</td>
<td></td>
</tr>
<tr>
<td>025:120</td>
<td>Upper Level Piano</td>
<td></td>
</tr>
<tr>
<td>025:121</td>
<td>Upper Level Organ</td>
<td></td>
</tr>
<tr>
<td>025:122</td>
<td>Upper Level Violin</td>
<td></td>
</tr>
<tr>
<td>025:123</td>
<td>Upper Level Viola</td>
<td></td>
</tr>
<tr>
<td>025:124</td>
<td>Upper Level Cello</td>
<td></td>
</tr>
<tr>
<td>025:125</td>
<td>Upper Level String Bass</td>
<td></td>
</tr>
<tr>
<td>025:126</td>
<td>Upper Level Flute</td>
<td></td>
</tr>
<tr>
<td>025:127</td>
<td>Upper Level Oboe</td>
<td></td>
</tr>
<tr>
<td>025:128</td>
<td>Upper Level Clarinet</td>
<td></td>
</tr>
<tr>
<td>025:129</td>
<td>Upper Level Bassoon</td>
<td></td>
</tr>
<tr>
<td>025:130</td>
<td>Upper Level Saxophone</td>
<td></td>
</tr>
<tr>
<td>025:131</td>
<td>Upper Level Horn</td>
<td></td>
</tr>
<tr>
<td>025:132</td>
<td>Upper Level Trumpet</td>
<td></td>
</tr>
<tr>
<td>025:133</td>
<td>Upper Level Euphonium</td>
<td></td>
</tr>
<tr>
<td>025:134</td>
<td>Upper Level Trombone</td>
<td></td>
</tr>
<tr>
<td>025:135</td>
<td>Upper Level Tuba</td>
<td></td>
</tr>
<tr>
<td>025:136</td>
<td>Upper Level Percussion</td>
<td></td>
</tr>
</tbody>
</table>

**Graduate Majors**

<table>
<thead>
<tr>
<th>Code</th>
<th>Instrument</th>
<th>Arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:263</td>
<td>Major Voice</td>
<td></td>
</tr>
<tr>
<td>025:264</td>
<td>Major Piano</td>
<td></td>
</tr>
<tr>
<td>025:266</td>
<td>Major Organ</td>
<td></td>
</tr>
<tr>
<td>025:267</td>
<td>Major Violin</td>
<td></td>
</tr>
<tr>
<td>025:268</td>
<td>Major Viola</td>
<td></td>
</tr>
</tbody>
</table>
### SECONDARY PERFORMANCE INSTRUCTION FOR MAJORS

Instruction consists of one half-hour lesson per week. Offered on a fee-per-course basis, in addition to tuition.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:017</td>
<td>Secondary Performance--Voice</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:018</td>
<td>Secondary Performance--Piano</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:019</td>
<td>Secondary Performance--Organ</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:021</td>
<td>Secondary Performance--Violin</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:022</td>
<td>Secondary Performance--Viola</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:023</td>
<td>Secondary Performance--Cello</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:024</td>
<td>Secondary Performance--String Bass</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:025</td>
<td>Secondary Performance--Flute</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:026</td>
<td>Secondary Performance--Oboe</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:027</td>
<td>Secondary Performance--Clarinet</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:028</td>
<td>Secondary Performance--Bassoon</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:029</td>
<td>Secondary Performance--Saxophone</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>025:030</td>
<td>Secondary Performance--Horn</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
025:031 Secondary Performance--Trumpet 1 s.h.

025:032 Secondary Performance--Euphonium 1 s.h.

025:033 Secondary Performance--Trombone 1 s.h.

025:034 Secondary Performance--Tuba 1 s.h.

025:035 Secondary Performance--Percussion 1 s.h.

025:036 Secondary Performance--Composition 1 s.h.

Choral Literature

025:341 Seminar: Choral Literature and Analysis I 1-3 s.h.

025:342 Seminar: Choral Literature and Analysis II 1-3 s.h.

025:343 Seminar: Choral Literature and Analysis III 1-3 s.h.

025:344 Seminar: Choral Literature and Analysis IV 1-3 s.h.

Composition

025:148 Instrumentation 2 s.h.
Basic techniques of writing for orchestral instruments; ranges, transpositions, sound production, notating scores and parts. Prerequisite: 025:005.

025:155 Composition 2 s.h.
Class instruction in composition. Prerequisite: 025:005 or consent of instructor.

025:156 Composition Seminar 0-1 s.h.

025:157 Orchestration 2 s.h.
Instrumental capabilities and combinations in solo, chamber, and large ensemble literature; application in composition. Prerequisite: 025:148 or consent of instructor.

025:179 Composition arr.
Individual lessons with a composition faculty member. Prerequisite: 025:155 or admission to B.M. composition concentration. Corequisite: 025:156.

025:223 Advanced Composition arr.
Repeatable. Prerequisite: consent of instructor. Corequisite: 025:156.

025:250 Composition: Electronic Media I 3 s.h.
Composition using analog, digital technology. Offered fall semesters. Repeatable. Prerequisite: consent of instructor.

025:251 Composition: Electronic Media II 3 s.h.
Advanced interactive techniques in composition in association with analog, digital technologies. Offered spring semesters. Repeatable. Prerequisite: consent of instructor.
Conducting
See also 025:108 Instrumental Conducting, 025:109 Choral Methods, and 025:110 Choral Conducting and Literature, under the heading Music Education.

025:107 Techniques of Conducting
Basic elements, score analysis. 2 s.h.

025:158 Advanced Conducting
Prerequisite: graduate standing. 2 s.h.

025:200 Seminar in Advanced Band Literature and Band History
Band literature; history. arr.

025:203 Advanced Choral Conducting I

025:204 Advanced Choral Conducting II

025:205 Advanced Choral Conducting III

025:206 Advanced Choral Conducting IV

025:225 Score Reading
1 s.h.

025:291 Orchestral Literature
2 s.h.

Ensembles
Courses may be repeated; consent of instructor required.

025:142 Camerata Singers
1 s.h.

025:162 All-University String Orchestra
Repertoire, rehearsal pacing, and performance expectation geared to general students. Open to all UI students with no audition. 1 s.h.

025:163 Steel Band
Musical and cultural introduction to steel band music of Trinidad and other Caribbean musical styles, including calypso, soca, ska, and reggae. Prerequisite: consent of instructor. 1 s.h.

025:171 Center for New Music Ensemble
Participation in the Center for New Music; focus on contemporary composition and performance, 20th- and 21st-century repertoire and styles. 1 s.h.

025:173 Introduction to Afro-Cuban Drumming
Drumming, dance, songs from folkloric and ceremonial Afro-Cuban forms; emphasis on drumming; may include participation in Afro-Cuban drum and dance ensemble. Same as 188:173. 1 s.h.

025:180 Large Pep Band
Performing ensemble for men's basketball games during spring semester. Prerequisite: membership in 025:193 Marching Band and audition. 1 s.h.

025:181 University Choir
1 s.h.
025:183 Chamber Orchestra 1 s.h.

025:185 Kantorei 1 s.h.

025:186 Piano Accompaniment Collaborative arts techniques, methods, and history. Prerequisite: keyboard major or consent of instructor. arr.

025:187 Piano Chamber Music Prerequisite: music major or consent of instructor. arr.

025:188 String Chamber Music arr.

025:190 Wind Chamber Music Preparation, performance of representative literature; sections for woodwinds, brass, flute, clarinet, horn, saxophone, double reed, trumpet, trombone, brass choir, tuba/euphonium ensemble. arr.

025:191 University Chorale Women's chorale. 1 s.h.

025:192 Orchestra 1 s.h.

025:193 Marching Band Offered fall semesters. 1 s.h.

025:194 Symphony Band/Concert Band/University Band Participation in Symphony Band, Concert Band, and/or University Band. 1 s.h.

025:195 Percussion Ensemble Range of styles and idioms, primarily written during the 20th and 21st centuries; historical or cultural aspects such as ancient rudimental drumming styles, ragtime, jazz, popular music, and music from Africa, the Caribbean, Brazil, Cuba, China. Prerequisite: consent of instructor. arr.

Jazz Studies

025:080 Jazz Cultures in America and Abroad How to listen to jazz and recognize a variety of processes that are taking place in performances and recordings; historical, social, and political issues, including race and gender; the unique blend of jazz of a particular region; attendance at live performances, meet and interview musicians, critics, and educators. GE: Cultural Diversity, Fine Arts. 3 s.h.

025:095 Sight Reading Jazz Methods for sight-reading and interpreting jazz notation. Prerequisite: instrumental major. 1 s.h.

025:101 Introduction to Improvisation Introduction to the practice of improvisation through performance of repertoire and the development of practicing strategies; exercises in melody, harmony, rhythm and transcription that together form an integrated approach to developing improvisations. Prerequisites: 025:002 and audition. 3 s.h.

025:102 Intermediate Jazz Improvisation Improvisation in the jazz repertoire of standards, bebop, and major composers such as Thelonious Monk, Wayne Shorter; memorization and use of melodies, knowledge of chords to the thirteenth, chromatic harmony, development of rhythmic motifs/alternation, strategies for multiple chorus improvisations. Prerequisites: 025:002, 025:101, and audition. 2 s.h.

025:118 Jazz Theory at the Piano Development of skills for interpreting melodies and chord symbols in mainstream practice of jazz harmony at the piano; application of scales, development of voice leading for jazz harmonies, reharmonization, and analysis. Prerequisites: 025:002 and 025:072, or audition. 2 s.h.
025:141 History of Jazz
Major 20th-century styles, artists, seminal works, and recordings; developments between 1917 and 1972. GE: Cultural Diversity.

025:196 Jazz Band Techniques
Development of skills for sight-reading and interpreting notated jazz. Prerequisite: audition.

025:197 Jazz Band
Rehearsals (four hours per week) and several concerts on and off campus. Prerequisite: audition.

025:224 Small Jazz Ensembles
Development of repertoire from standard jazz literature, arrangements and compositions by ensemble members; rehearsals (three hours per week) and performances on and off campus. Repeatable. Prerequisite: audition.

025:231 Jazz Composition and Arranging
Experience writing and arranging original jazz material for small and large ensembles, and presenting scores in computer notation; individual lessons. Repeatable. Prerequisite: 025:118 or score submission. Recommended: 025:117 and 025:157.

025:243 Advanced Jazz Improvisation
Builds on the skills learned in 025:102; contemporary techniques and styles used by current practitioners of improvisation; free improvisation, bitonal harmonies, through-composed forms, collective improvisation, nonwestern approaches. Repeatable. Prerequisites: 025:102 and audition.

025:244 Transcription
Individual projects to transcribe improvisations, small ensemble arrangements, large ensemble arrangements, or nonwestern techniques; use of computer notation programs and midi-realizations. Repeatable. Prerequisite: 025:102 or 025:118.

Music Education
Other music education courses are offered by the College of Education; see Teaching and Learning in the Catalog for listings and descriptions. Some courses have two numbers, one for the School of Music and the other for the College of Education. Students preparing for music teacher licensure should register under the education number.

Also see 025:196 Jazz Band Techniques under "Jazz Studies."

025:100 Class Strings
String playing and basic principles of string pedagogy. Prerequisite: teacher education student in music.

025:105 Instrumental Techniques
Repeatable. Same as 07S:143.

025:108 Instrumental Conducting
Advanced skills for instrumental conducting, score analysis, rehearsal techniques, literature selection. Prerequisite: 025:107. Same as 07S:145.

025:109 Choral Methods
Organization, implementation of effective choral music programs for all ages. Prerequisites: 07E:102 or 07S:102, 07S:190, 07S:096, and 025:107. Same as 07S:147.

025:110 Choral Conducting and Literature
Advanced skills appropriate to choral conducting, analysis, literature selection studied and implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under 07S:148. Prerequisites: 07S:147 and 025:107. Same as 07S:148.

025:112 String Methods and Materials
Methods for teaching bands in schools. Offered fall semesters. Prerequisites: (for 07S:150) 07E:102 or 07S:102, 07S:190, and 07S:096. Same as 07S:150.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:114</td>
<td>Introduction to Band Instruments</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Survey of wind and percussion instruments; for music education string majors.</td>
<td></td>
</tr>
<tr>
<td>025:117</td>
<td>Arranging for Band</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Scoring and arranging techniques for concert, marching bands. Offered spring semesters.</td>
<td></td>
</tr>
<tr>
<td>025:164</td>
<td>Band Methods and Materials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>High school and elementary school music methods required for teaching certificate; for instrumental music education majors. Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096. Same as 07S:140.</td>
<td></td>
</tr>
<tr>
<td>025:182</td>
<td>Marching Band Techniques</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Administration, charting. Offered fall semesters.</td>
<td></td>
</tr>
<tr>
<td>025:220</td>
<td>Music Education Workshop</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>For inservice music teachers; topics vary. Same as 07S:241.</td>
<td></td>
</tr>
</tbody>
</table>

### Music History

Note: Courses 025:303 Medieval Music and 025:309 Music 1945-Present, 025:313 Major Composers and 025:314 Genres of Music, 025:323 Medieval Music Notations and 025:324 Renaissance Music Notations, and 025:331 Performance Practices of Medieval and Renaissance Music deal with periods and special topics in music history. They are offered about every two years. All of them have as prerequisites 025:301 Advanced History and Literature of Music I and 025:302 Advanced History and Literature of Music II, or the equivalents, or consent of instructor.

This listing includes several courses appropriate for nonmajors. Other music history courses appropriate for nonmajors are listed under "General."

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:144</td>
<td>History of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: 025:003 and 025:004, or equivalents for majors; consent of instructor for nonmajors. GE: Fine Arts, Historical Perspectives.</td>
<td></td>
</tr>
<tr>
<td>025:146</td>
<td>History of Music II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: 025:003 and 025:004, or equivalents for majors; consent of instructor for nonmajors. GE: Fine Arts, Historical Perspectives.</td>
<td></td>
</tr>
<tr>
<td>025:238</td>
<td>Musicology Colloquium</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td>Repeatable.</td>
<td></td>
</tr>
<tr>
<td>025:301</td>
<td>Advanced History and Literature of Music I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>History and style of Medieval, Renaissance, and Baroque music (750-1750). Offered fall semesters.</td>
<td></td>
</tr>
<tr>
<td>025:302</td>
<td>Advanced History and Literature of Music II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>History and style of Classical, 19th-, 20th-, and 21st-century music (1750-present). Offered spring semesters.</td>
<td></td>
</tr>
<tr>
<td>025:303</td>
<td>Medieval Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: 025:301 or consent of instructor.</td>
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<tr>
<td>025:304</td>
<td>Renaissance Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: 025:301 or consent of instructor.</td>
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<tr>
<td>025:305</td>
<td>Seventeenth-Century Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: 025:301 or consent of instructor.</td>
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</tr>
<tr>
<td>025:306</td>
<td>Eighteenth-Century Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: 025:302 or consent of instructor.</td>
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</tr>
<tr>
<td>025:307</td>
<td>Nineteenth-Century Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: 025:302 or consent of instructor.</td>
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</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
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</tr>
<tr>
<td>025:308</td>
<td>Music 1900-1945</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:309</td>
<td>Music 1945-Present</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:310</td>
<td>American Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:313</td>
<td>Major Composers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:314</td>
<td>Genres of Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:318</td>
<td>Topics in Ethnomusicology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:319</td>
<td>Foundations of Ethnomusicology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:320</td>
<td>Introduction to Musicology</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>025:321</td>
<td>Introduction to Graduate Study in Music</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>025:323</td>
<td>Medieval Music Notations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:324</td>
<td>Renaissance Music Notations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:325</td>
<td>Music Editing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:330</td>
<td>Seminar in Musicology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:331</td>
<td>Performance Practices of Medieval and Renaissance Music</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>025:381</td>
<td>Readings in Music History</td>
<td>arr.</td>
</tr>
</tbody>
</table>

Music and Technology

Also see 025:250 Composition: Electronic Media I and 025:251 Composition: Electronic Media II listed under "Composition."

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:149</td>
<td>Audio Recording I</td>
<td>3 s.h.</td>
<td></td>
</tr>
</tbody>
</table>
Audio fundamentals, including sound generation, acoustical environments, forms of sound energy, basic audio systems; use of microphones (primarily stereo techniques), mixers, recorders, related equipment; introduction to Pro Tools digital recording, editing, and mixing on Macintosh; production of high-quality audio compact discs. Offered fall semesters. Prerequisite: consent of instructor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:152</td>
<td>Audio Recording II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Functionality with Pro Tools digital</td>
<td></td>
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<tr>
<td></td>
<td>audio recording, editing, mixing, and</td>
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<tr>
<td></td>
<td>mastering on Macintosh; basic digital</td>
<td></td>
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<tr>
<td></td>
<td>theory; configuration of Macintosh G4</td>
<td></td>
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<tr>
<td></td>
<td>computer with Pro Tools hardware and</td>
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<tr>
<td></td>
<td>software; music editing projects and</td>
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<tr>
<td></td>
<td>production of multitrack recordings.</td>
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<tr>
<td></td>
<td>Offered spring semesters.</td>
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</tr>
<tr>
<td></td>
<td>Prerequisites: 025:149 and consent of</td>
<td></td>
</tr>
<tr>
<td></td>
<td>instructor.</td>
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</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:161</td>
<td>Fundamentals of Piano Technology</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Offered spring semesters.</td>
<td></td>
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</table>

**Music Therapy**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:087</td>
<td>Orientation to Music Therapy</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Theory, practice; typical clients and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>places of employment in music therapy.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>025:091</td>
<td>Music Foundations in Therapy I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Skill development on social instruments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>such as guitar, autoharp, piano;</td>
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</tr>
<tr>
<td></td>
<td>song-leading skills and repertoire</td>
<td></td>
</tr>
<tr>
<td></td>
<td>development for use in clinical music</td>
<td></td>
</tr>
<tr>
<td></td>
<td>therapy sessions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites: 025:087, music therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>major, and consent of instructor.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>025:092</td>
<td>Music Foundations in Therapy II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Advanced skill development on guitar for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>use in clinical music therapy sessions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>percussion techniques, and related</td>
<td></td>
</tr>
<tr>
<td></td>
<td>skills used in therapeutic settings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prerequisites: 025:091, music therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>major, and consent of instructor.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| 025:094    | Music Therapy Practicum                    | 1-2 s.h.| Supervised clinical training with adult clients and children in variety of health care and educational settings. Prerequisites: 025:087, music therapy major, and consent of instructor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
</table>
| 025:096    | Music Techniques in Special Education and  | 2-3 s.h.| Music methods and materials appropriate for students with disabilities in special educational settings; overview of individualized educational planning for students with disabilities. Prerequisite: music therapy or music education major or consent of instructor.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</table>
| 025:098    | Senior Project in Music Therapy            | 1 s.h.  | Prerequisite: consent of instructor.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
</table>
| 025:138    | Music Therapy Techniques: Atypical Children| 3 s.h.  | Techniques, procedures for use in clinical, educational settings. Prerequisites: 025:087, music therapy major, and consent of instructor.

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</table>
| 025:139    | Music Therapy Techniques: Adult Clients    | 3 s.h.  | Techniques, procedures for work with adult clients with disabilities. Prerequisites: 025:087, music therapy major, and consent of instructor.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</table>
| 025:140    | Internship in Music Therapy                | arr.    | Clinical training under direction of board certified music therapist. Prerequisites: core music therapy requirements and consent of instructor.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</table>
| 025:221    | Special Studies in Music Therapy           | arr.    | Seminar. Repeatable. Prerequisites: music therapy major and consent of instructor.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</table>
| 025:283    | Graduate Music Therapy Practicum           | 3 s.h.  | Seminar, clinical field work. Prerequisites: undergraduate music therapy practicum and consent of instructor.

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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>025:285</td>
<td>Research in Music Therapy--Graduate</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
Research methodology; foundation for subsequent semesters of research on capstone project in music therapy. Repeatable. Prerequisite: consent of instructor.

025:286 College Teaching and Clinic Supervision in Music Therapy 3 s.h.
Principles of college teaching, curriculum development, clinical supervision in music therapy. Prerequisite: consent of instructor.

Orchestrals and Band Instruments
Also see 025:112 String Methods and Materials, under "Music Education."

025:168 Audition Repertoire 1 s.h.
Practicum on passages frequently requested at professional auditions. Prerequisite: consent of studio instructor.

025:174 Baroque Seminar for Strings 2 s.h.
Fundamental Baroque performance practices; history, pedagogy, and hands-on training. Prerequisite: enrollment in upper-level or graduate-level applied studies.

025:209 Advanced Woodwind Pedagogy and Literature I 2 s.h.
Saxophone and clarinet solo and study literature; integration of pedagogical topics.

025:210 Advanced Woodwind Pedagogy and Literature II 3 s.h.
Oboe, bassoon, and flute solo and study literature; integration of pedagogical topics.

025:253 Advanced Brass Pedagogy and Literature I 2 s.h.
Tuba, euphonium, and trombone literature; pedagogical topics.

025:254 Advanced Brass Pedagogy and Literature II 2 s.h.
Trumpet and horn literature; pedagogical topics.

025:255 Advanced Brass Ensemble Literature 2 s.h.
Brass chamber music literature, including mixed and like-instrument ensembles.

025:295 Advanced Percussion Pedagogy and Literature 2 s.h.
Percussion literature, styles, notation, performance techniques, composition; survey. Prerequisite: consent of instructor.

025:298 Advanced String Methods and Literature I 2 s.h.
Violin, viola, cello, and double bass solo and chamber music repertoire, pedagogical methods.

025:299 Advanced String Methods and Literature II 2 s.h.
Violin, viola, cello, and double bass solo and chamber music repertoire, pedagogical methods.

025:335 Seminar in Performance and Pedagogy Research I 1 s.h.
Research in the student's area; selection of a research topic. Offered spring semesters.

025:340 Seminar in Performance and Pedagogy Research II 1 s.h.
Continuation of 025:335; thesis proposal preparation; survey of related literature. Offered spring semesters.

Organ and Sacred Music

025:184 Liturgics 2 s.h.
History of liturgies and survey of liturgical music from Judaism to present.

025:189 Organ Literature Survey 2 s.h.
Fifteenth century to present. Prerequisite: advanced undergraduate or graduate standing.

025:198 Service Playing and Improvisation 2 s.h.
Hymn playing, accompanying, basic improvisation techniques. Prerequisite: organ major or consent of instructor.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>025:226</td>
<td>History of Organ Building and Design</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Development of organ design from Middle Ages to present; basic concepts of construction, maintenance. Repeatable.</td>
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<tr>
<td>025:228</td>
<td>Organ Pedagogy</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>History, theory, practice from Renaissance to present; methods, literature appropriate for various levels.</td>
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<tr>
<td>025:229</td>
<td>Organ Literature Special Topics</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Specialized study in selected areas of organ literature. Repeatable.</td>
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<tr>
<td>025:252</td>
<td>Hymnology</td>
<td>1-2 s.h.</td>
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<tr>
<td></td>
<td>Survey of historic hymnody: ancient odes, Latin hymns, Reformation hymns and psalms; current developments in hymnody and hymnals; may be special topic study. Repeatable.</td>
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<tr>
<td>025:284</td>
<td>Studies in Church Music</td>
<td>arr.</td>
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<td></td>
<td>Individual projects in church music: liturgies, hymnody, church choir repertory; religion and the arts.</td>
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</table>

**Piano**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>025:071</td>
<td>Group Instruction in Piano I</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Beginning instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; skill development in sight reading, technique, harmonization, transposition, improvisation, simple literature. Prerequisite: music major. Corequisite: 025:002.</td>
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<tr>
<td>025:072</td>
<td>Group Instruction in Piano II</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Elementary to early intermediate instruction for music majors whose principal performing medium is voice or an orchestral or band instrument; continued skill development begun in 025:071; introduction of easy solo and ensemble literature. Prerequisite: 025:071 or successful completion of proficiency examination. Corequisite: 025:003.</td>
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<tr>
<td>025:073</td>
<td>Group Instruction in Piano III</td>
<td>1 s.h.</td>
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<td></td>
<td>Skills for the music therapy profession; sight-reading, harmonization, transposition, reading from a fake book, improvisation. Prerequisite: music therapy major.</td>
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<tr>
<td>025:113</td>
<td>Methods of Teaching Piano</td>
<td>2 s.h.</td>
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<td></td>
<td>Methods, materials, and teaching techniques for preschool students, precollege students, and adult learners. Prerequisite: keyboard major or consent of instructor.</td>
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<tr>
<td>025:232</td>
<td>Piano Pedagogy I</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Principles of piano teaching at beginning to intermediate levels; developmental and learning theories, competing educational philosophies, and how these ideas and current piano pedagogy materials interact; preschool approaches; teaching children with ADHD, dyslexia, other learning disabilities; teaching gifted children; the adult beginner; performing arts medicine; the business of teaching.</td>
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<tr>
<td>025:233</td>
<td>Piano Pedagogy II</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>History of the piano and its technique and pedagogy; national schools of piano playing; relationship of technological changes in piano construction to piano technique, pedagogy, and composition; major methods and treatises, historical recordings and video clips; research leading to understanding of students' individual piano lineage.</td>
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<tr>
<td>025:296</td>
<td>Piano Literature I</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Baroque era to Mozart or Chopin through 1900. Repeatable.</td>
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<tr>
<td>025:297</td>
<td>Piano Literature II</td>
<td>2 s.h.</td>
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<td></td>
<td>Beethoven through Schumann or 20th century. Repeatable.</td>
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<tr>
<td>025:361</td>
<td>Special Studies Piano Literature</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Individual research in special aspects of piano literature; primarily for D.M.A. students. Repeatable.</td>
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<tr>
<td></td>
<td>Advanced collaborative arts practicum. Prerequisite: 025:186 or consent of instructor.</td>
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</tbody>
</table>
Recital and Thesis

025:097 Honors in Music 1-4 s.h.
Prerequisite: honors standing.

025:099 Bachelor's Thesis 0-1 s.h.
Prerequisite: consent of instructor.

025:154 Senior Recital 1 s.h.

025:199 Special Studies arr.


025:400 M.A. Thesis arr.


025:402 M.A. Recital arr.


025:503 D.M.A. Recital arr.

Theory

025:001 Fundamentals of Music for Majors 3 s.h.
Rudiments of music—notation of pitch and rhythm, meter, scales, keys, intervals, triads; first of a five-semester sequence.

025:002 Musicianship and Theory I 4 s.h.
Principles of harmony; emphasis on aural skills, theoretical concepts, notation. Offered fall semesters. Prerequisite: 025:001 or equivalent or successful completion of music theory diagnostic exam. Corequisite: 025:071 or successful completion of piano proficiency exam.

025:003 Musicianship and Theory II 4 s.h.
Continuation of 025:002. Offered spring semesters. Corequisite: 025:072 or successful completion of piano proficiency exam.

025:004 Musicianship and Theory III 4 s.h.
Continuation of 025:002 and 025:003; focus on common-practice repertory. Offered fall semesters.

025:005 Musicianship and Theory IV 4 s.h.
Continuation of 025:002, 025:003, and 025:004; focus on late 19th- and early 20th-century repertories. Offered spring semesters.

025:145 Counterpoint Before 1600 3 s.h.
Two- and three-part counterpoint: Renaissance polyphony. Prerequisite: 025:003 for undergraduates, 025:240 for graduate students.

025:147 Counterpoint After 1600 3 s.h.
Two- and three-part writing in the style of J.S. Bach; fugue. Prerequisite: 025:005 for undergraduates, 025:240 for graduate students.

**025:153 Keyboard Harmony**  
Melody harmonization and figured-bass realization at the keyboard. Prerequisites: 025:005 for undergraduates, 025:240 for graduate students; and keyboard proficiency.

**025:236 Music Theory Pedagogy**  
Methods and techniques of teaching college-level music theory, including harmony, sight singing, ear training. Prerequisite: 025:240. Corequisite: 025:237.

**025:237 Music Theory Colloquium**  
Repeatable.

**025:240 Basic Analytical Techniques**  
Theories and strategies of analysis applied to tonal and post-tonal music.

**025:241 History of Music Theory I**  
Prerequisite: 025:240.

**025:242 History of Music Theory II**  
Prerequisites: 025:240 and 025:241.

**025:247 Post-Tonal Analysis**  
Prerequisite: 025:240.

**025:249 Tonal Analysis**  
Prerequisite: 025:240.

**025:256 Special Topics in Theory and Analysis**  
Repeatable. Prerequisite: 025:240.

**025:311 Advanced Post-Tonal Theory and Analysis**  
Repeatable. Prerequisite: 025:247 or consent of instructor.

**025:312 Advanced Tonal Theory and Analysis**  
Repeatable. Prerequisite: 025:249 or consent of instructor.

**025:380 Readings in Music Theory**

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**Voice and Opera**

**025:115 Diction for Singers I**  
Italian and German pronunciation for singing; basics of international phonetic alphabet; no previous background required.

**025:116 Diction for Singers II**  
French and English pronunciation for singing. Prerequisite: 025:115.

**025:150 Interpretation of German Art Song**  

**025:151 Interpretation of Non-German Art Song**  
Art songs in English, French, Italian, Spanish; appropriate diction, style. Prerequisites: 025:115 and 025:116.

**025:159 Graduate Diction**  
Advanced pronunciation of singing languages. Prerequisite: grade of B or higher in undergraduate diction in French, German, and Italian.
025:165 Opera Workshop
Opera performing techniques, including acting, aria interpretation, scene work. Prerequisite: vocal major or audition.

025:169 Singing for Actors
Skill development for healthy, effective singing in the musical theatre style; techniques of vocal production through breath management, resonance, articulation, flexibility; song interpretation and repertoire. Recommended: (for 025:169) concurrent registration in 025:059. Same as 049:106.

025:170 Opera Theater Chorus
Prerequisite: audition.

025:175 Acting for Singers
Fundamentals of acting technique, with attention to demands on performers in opera and musical theater. Prerequisite: consent of instructor. Same as 049:102.

025:201 Principles of Voice Production
Basic physical, physiological, pedagogical principles in understanding professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. Offered fall semesters of odd years. Same as 003:201.

025:202 Methods of Teaching Voice
Attitude, musicianship, foreign language aptitude, physical and emotional characteristics; mental images used to modify respiratory, phonatory, articulatory behavior; vocal hygiene; performance anxiety; student-teacher relationships; administration in vocal schools, professional organizations. Offered spring semesters. Same as 003:202.

025:216 Voice for Performers
Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Prerequisite: enrollment in Summer Vocology Institute, Denver, Colorado. Same as 003:204, 049:201.

025:235 Topics in Vocal Performance
Selected areas of vocal performance. Repeatable.

025:245 Opera Production
Preparation and rehearsals leading up to performance of full production; may include one-act opera, chamber opera, musical theater production, or full-length opera. Repeatable. Prerequisite: audition. Corequisite: 025:348.

025:248 Opera Theater: Directing Seminar
Exploration, discussion, experience using techniques unique to directing opera; score and libretto analysis, fundamentals of stagecraft, casting and management skills. Prerequisite: consent of instructor.

025:339 Survey of Operatic Literature
Important operatic scores examined from standpoint of performers, directors; production problems. Repeatable.

025:348 Vocal/Operatic Coaching

025:351 Survey of Song Literature I
German language lieder from 18th century to present; French mélodie from Meyerbeer to present. Offered fall semesters of odd years.

025:352 Survey of Song Literature II
British, American, Italian, Spanish, Latin American, Scandinavian, and Russian art song from 18th century to present. Offered fall semesters of even years.

025:356 Voice Habilitation
Application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy. Offered fall semesters. Prerequisites: 003:114 or equivalent, and 003:201. Same as 003:213.
025:357 Instrumentation for Voice Analysis
Same as 003:221.
Performing Arts Entrepreneurship

Director, Division of Performing Arts: Alan MacVey
Coordinator: David McGraw
Advisor: David McGraw (Theatre Arts)
Undergraduate degree: B.A. in Performing Arts Entrepreneurship
Undergraduate nondegree program: Certificate in Performing Arts Entrepreneurship
Web site: http://www.uiowa.edu/~dpa

Undergraduate Programs

The Division of Performing Arts, in partnership with the John Pappajohn Entrepreneurial Center in the Tippie College of Business, offers the Certificate in Performing Arts Entrepreneurship. The program gives students the opportunity to pursue professional studies in the performing arts, in the framework of a liberal arts education, and to develop the skills required for creating market-based opportunities in the arts.

The Bachelor of Arts major in performing arts entrepreneurship is closing; no new enrollments are being accepted in the major. Students who previously declared the major must fulfill all requirements for the major and the B.A. by July 27, 2012, or they will not be allowed to continue in the major and will need to declare a new program of study. See "Bachelor of Arts" below.

Certificate

The undergraduate Certificate in Performing Arts Entrepreneurship requires a minimum of 29-33 s.h. The program is designed for students of dance, music, and theatre arts who wish to learn about the business of the performing arts and to develop the entrepreneurial skills necessary for promoting their artistic work.

Certificate students take entrepreneurship-related course work in accounting, financial management, and marketing as well as courses focused on arts management and leadership practices in both commercial and nonprofit organizations (20-24 s.h.). They also must complete course work in dance, music, or theatre arts (9 s.h.) and an internship in an arts organization (0 s.h.).

Students are strongly encouraged, but not required, to pursue a major in one of the performing arts.

The certificate requires the following course work. Students may not use a single course to satisfy more than one certificate requirement (e.g., a business course required for the certificate that is cross-listed in dance, music, or theatre arts may not also be counted toward the performing arts course requirement).

PERFORMING ARTS

Certificate students earn 9 s.h. in 100-level courses taken in one of three performing arts units: the Department of Dance, the School of Music, or the Department of Theatre Arts. Many 100-level courses have prerequisites; consult an advisor about course sequencing.

BUSINESS AND ENTREPRENEURSHIP

Students complete one course in each of these areas: accounting, marketing, financial management, new ventures/entrepreneurship, entrepreneurial marketing, e-commerce, arts management, and arts leadership. They also must complete 06T:050 Foundations in Entrepreneurship, an entrepreneurship prerequisite that is offered both on campus and online.

Prerequisite:

06T:050 Foundations in Entrepreneurship 2 s.h.

One of these:

06T:116 Basics of Small Business Marketing 1 s.h.
06M:100 Introduction to Marketing Strategy 3 s.h.

An approved college-level marketing course (transfer courses accepted)

One of these:

01P:185 Grant Writing in the Arts 3 s.h.
06T:133 Entrepreneurial Finance 3 s.h.
One of these:
06T:120 Entrepreneurship and Innovation 3 s.h.
188:111 New Ventures in the Arts 3 s.h.

All of these:
06T:134 Entrepreneurial Marketing 3 s.h.
06T:148 E-Commerce Strategies for Entrepreneurs 3 s.h.
188:109 Introduction to Arts Management 3 s.h.
188:195 Arts Leadership Seminar 3 s.h.

**INTERNSHIP**

Students may complete the required internship (0 s.h.) during any semester in the program. The Pomerantz Career Center coordinates a wide variety of internships; see Career Center Programs (University College) in the Catalog. Students also may choose other internship opportunities. The Iowa Arts Council and the Iowa Cultural Corridor Alliance maintain lists of recommended host organizations.

**Residence in Performing Arts Learning Community**

First- and second-year students studying performing arts entrepreneurship may apply to live in the Performing Arts Living-Learning Community, a coed floor in Currier Hall, across the Iowa River from the fine arts campus. The community includes students from art and art history, dance, film, music, and theatre arts.

**Bachelor of Arts**

The major in performing arts entrepreneurship is closing. The closure was approved by the Board of Regents, State of Iowa, in summer 2008. No new enrollments are being accepted in the major.

Students who previously declared the major in performing arts entrepreneurship must fulfill all requirements for the major and the Bachelor of Arts by July 27, 2012. Students who do not complete the major by this date will not be allowed to continue in the major and will need to declare a new program of study. The requirements for the major are stated below. They are the same as in previous years.

The Bachelor of Arts in performing arts entrepreneurship requires a minimum of 120 s.h., including 53-59 s.h. of work for the major. All students pursuing the major choose a primary area of study in dance, music, or theatre arts. They also choose a secondary area different from their primary area. All students complete three required courses in entrepreneurship, a capstone course, and an internship.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Students may apply a maximum of 24 s.h. earned at other institutions toward the major in performing arts entrepreneurship. In order to be counted toward the major, all transfer course work must be reviewed and approved by the program.

Performing arts entrepreneurship students are advised by the Academic Advising Center until they have earned 24 s.h. Students are then assigned a faculty advisor from the Performing Arts Entrepreneurship Program.

Requirements for the major are as follows.

**PRIMARY AREA**

Students complete the requirements for the primary area of their choosing.

**Dance**

This primary area requires a total of 26 s.h., including at least 12 s.h. earned in University of Iowa courses numbered 137:100 or above. An audition is required; contact the Department of Dance for details.

Before enrolling in a course, students must satisfy the course's prerequisites. For course descriptions, including prerequisites, see the Department of Dance course listing in the Catalog.

One of these:
137:034 Beginning/Contact Improvisation 1-2 s.h.
137:134 Improvisation I 1-2 s.h.
All of these:
137:050 Dance Production 3 s.h.
137:080 Dance and Society 3 s.h.
Dance technique (any level, from ballet, modern, jazz, or Afro-Cuban drum and dance) 9 s.h.

Dance electives--6 s.h. from these:
137:051/049:045 Production: Run Crew 1-2 s.h.
137:070 Choreography I 2 s.h.
137:071 Choreography II 2 s.h.
137:106 Dance Performance 1 s.h.
137:147/049:108 Dance Kinesiology 3 s.h.
137:149 Honors Studies in Dance arr.
137:181 Dance History 3 s.h.
137:182 The Contemporary Dance Scene 3 s.h.
137:190 Independent Study arr.

Additional dance technique courses (any level, from ballet, modern, jazz, or Afro-Cuban drum and dance) 1-3 s.h.

One of these:
137:147/049:108 Dance Kinesiology 3 s.h.
137:181 Dance History 3 s.h.
137:182 The Contemporary Dance Scene 3 s.h.

Music
This primary area requires a total of 26 s.h. An audition is required. Contact the School of Music for details.

All of these:
025:001 Fundamentals of Music for Majors (unless exempted by proficiency exam) 3 s.h.
025:002 Musicianship and Theory I 4 s.h.
025:003 Musicianship and Theory II 4 s.h.
025:071 Group Instruction in Piano I (unless exempted by proficiency exam) 1 s.h.
025:072 Group Instruction in Piano II (unless exempted by proficiency exam) 1 s.h.

Music history--one of these:
025:103 World Music 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
025:141 History of Jazz 3 s.h.
025:144 History of Music I 3 s.h.
025:146 History of Music II 3 s.h.
025:178 Music, Culture, and Identity 3 s.h.

All of these:
Applied music for lower-level undergraduates (students must audition to be accepted by a professor--register for 2 s.h. each for two semesters) 4 s.h.
Ensemble participation (placement by audition in choral, orchestra, band, or jazz ensembles) 4 s.h.
025:074 Recital Attendance (two sessions) 2 s.h.

Students who are exempted by proficiency exam from 025:001 Fundamentals of Music for Majors (3 s.h.), 025:071 Group Instruction in Piano I (1 s.h.), or 025:072 Group Instruction in Piano II (1 s.h.) must earn an equal number of semester hours in music electives.

Theatre Arts
This primary area requires a total of 25 s.h.

All of these:
049:025 Acting I 3 s.h.
049:044 Theatre Crafts 3 s.h.
049:060 Playscript Analysis 3 s.h.
049:112 History of Theatre and Drama I 3 s.h.
049:113 History of Theatre and Drama II 3 s.h.

Design—one of these:
049:043 Elements of Design 3 s.h.
049:133 Theatre Design I 3 s.h.
049:134 Scene Design I 3 s.h.
049:135 Costume Design I 3 s.h.
049:136 Lighting Design I 3 s.h.
049:146 Drawing and Rendering for the Theatre 3 s.h.

One of these:
049:045 Production: Run Crew 1 s.h.
049:047 Production: Construction 1 s.h.

One of these:
049:130 Directing I 3 s.h.
049:172 Senior Seminar 3 s.h.
049:194 Dramaturgy 3 s.h.
A playwriting course (049:063 or 049:165) 3 s.h.

One of these:
049:109 Introduction to Arts Management 3 s.h.
049:125 Voice for the Actor 3 s.h.
049:127 Theatre Movement 3 s.h.
049:132 Stage Management 3 s.h.
049:133 Theatre Design I 3 s.h.
049:134 Scene Design I 3 s.h.
049:135 Costume Design I 3 s.h.
049:136 Lighting Design I 3 s.h.
049:140 Sound Design for the Theatre 3 s.h.
049:147 Technical Production I 3 s.h.
049:148 Technical Production: Special Topics 3 s.h.

SECONDARY AREA

Students complete the requirements for the secondary area of their choosing.

Dance

This secondary area requires at least 15 s.h. of course work in dance. The following courses are required.

137:034 Beginning/Contact Improvisation 2 s.h.
137:080 Dance and Society 3 s.h.
Dance technique (any level, from ballet, modern, jazz, or Afro-Cuban drum and dance) 7 s.h.
Dance electives 3 s.h.

Music

This secondary area requires at least 18 s.h. of course work (15 s.h. for students who are exempted from 025:001 Fundamentals of Music for Majors by proficiency exam). The following courses are required.

All of these:
025:001 Fundamentals of Music for Majors (unless exempted by proficiency exam) 3 s.h.
025:002 Musicianship and Theory I 4 s.h.
025:064 Recital Attendance for Non-Majors (taken twice) 2 s.h.
Ensemble or applied music courses 3 s.h.
Music electives 3 s.h.

Music history—one of these:
025:103 World Music 3 s.h.
025:104 Music of Latin America and the Caribbean 3 s.h.
025:141 History of Jazz 3 s.h.
025:144 History of Music I 3 s.h.
025:146 History of Music II 3 s.h.
025:178 Music, Culture, and Identity 3 s.h.

In addition to the above courses, a minimum of 3 s.h. of coursework in theatre arts must be completed.

This secondary area requires at least 15 s.h. of course work in theatre arts, excluding 049:001 Art of the Theatre, 049:002 Theatre and Society: Ancients and Moderns, and 049:003 Theatre and Society: Romantics and Rebels.

At least 12 of the 15 s.h. must be earned in University of Iowa courses chosen from the following list.

- 049:021 Basic Acting II 3 s.h.
- 049:025 Acting I 3 s.h.
- 049:043 Elements of Design 3 s.h.
- 049:044 Theatre Crafts 3 s.h.
- 049:060 Playscript Analysis 3 s.h.
- 049:062 Playwriting I 3 s.h.
- 049:063 Playwriting II 3 s.h.
- 049:101 Drama in the Classroom 3 s.h.

Courses numbered above 049:101 are not required.

ENTREPRENEURSHIP STUDIES

Required courses total 9 s.h. Students also must complete 06T:050 Foundations in Entrepreneurship, an entrepreneurship prerequisite that is offered both on campus and online.

Prerequisite:

06T:050 Foundations in Entrepreneurship 2 s.h.

Required courses:

- 06T:133 Entrepreneurial Finance 3 s.h.
- 06T:134 Entrepreneurial Marketing 3 s.h.

One of these:

- 06T:120 Entrepreneurship and Innovation 3 s.h.

CAPSTONE COURSE

One of these:

- 188:161/049:161 The Arts in Performance (or 137:161) 3 s.h.
- 188:195/049:195 Arts Leadership Seminar (or 145:195) 3 s.h.

INTERNSHIP

409:188 Internship in Performing Arts 0 s.h.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available to students pursing the performing arts entrepreneurship major. Many students need an extra semester to complete the internship requirement. But some students may be able to graduate in four years by taking summer course work or a summer internship. Advisors work with students to develop individual graduation plans.

Honors

Students who are members of the University of Iowa Honors Program, have a g.p.a. of at least 3.33 in the major, and have approval from their primary advisor may undertake an honors project. Projects may be analytical, creative, or a combination of the two. They ordinarily require an oral presentation or performance for designated faculty members as well as a research and writing component, which is due upon the project's completion. Performing arts
entrepreneurship majors who are members of the University of Iowa Honors Program may take honors courses in their primary and secondary areas. Courses can be designated honors courses with permission of the faculty member who teaches the course, the department offering the course, and the University of Iowa Honors Program. Honors Program membership requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

**Performing Arts Entrepreneurship Courses**

**188:001 Cultural Connections**
1 s.h.
Forum for an interdisciplinary perspective on culture; exposure to all art forms; classtime presentations of live music, dance, and theater performances or rehearsals in conjunction with film and art.

**188:080 Dance and Society**
3 s.h.
Role of dance and other forms of physical culture in nations worldwide, including the United States, Brazil, West Africa, France, Germany; relationships between dance and culture (e.g., function of dance in spiritual, celebratory, social, political contexts) examined through ethnographic techniques; exchange of dance forms and ideas about the body from old to new worlds and back; aesthetic issues related to concert dance (e.g., performance, choreography, spectatorship, criticism, production). GE: Fine Arts, Humanities. Same as 137:080.

**188:109 Introduction to Arts Management**
3 s.h.
Nonprofit performing arts management and administrative principles; practical applications, trends in the field; focus on arts organizations and their key administrative positions. Same as 049:109, 145:109.

**188:111 New Ventures in the Arts**
3 s.h.
Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates 06J:125 and 06T:120. Prerequisites: 06A:001 or 06T:050 or an approved college-level accounting course, and 06M:100; or graduate standing and consent of instructor. Corequisite: 06T:113. Same as 049:111, 06T:125, 145:111.

**188:137 World of the Beatles**
3 s.h.
How the Beatles' music was influenced by American pop music, the drug culture, and the Avant Garde, nonwestern instruments and philosophy, anti-war sentiments, and world politics, and so forth; Beatlemania's impact on British and American cultures and its role in opening Eastern Europe to the West. Same as 025:137.

**188:156 Stage Makeup**
3 s.h.
Same as 049:156.

**188:161 The Arts in Performance**
3 s.h.

**188:167 Movement for Performers**
2-3 s.h.
Movement as support for sound production, artistic expression, and wellness; Bartenieff Fundamentals, Laban Movement Analysis, or principles of the Alexander Technique as methods of organizing and integrating body movement and expanding expressive range; studio course with practice, journal, observations, project applying movement skills to student's area of performance/study. Same as 025:167, 049:105, 137:160.

**188:173 Introduction to Afro-Cuban Drumming**
1 s.h.
Drumming, dance, songs from folkloric and ceremonial Afro-Cuban forms; emphasis on drumming; may include participation in Afro-Cuban drum and dance ensemble. Same as 025:173.

**188:174 Introduction to Afro-Cuban Dance**
1 s.h.
Introduction to the dance, drumming, and songs of the Afro-Cuban folkloric traditions; emphasis on dance. May participate in UI Afro-Cuban Drum and Dance ensemble. Pre- or corequisite: 137:175 or 188:175. Same as 137:174.

**188:175 Afro-Cuban Drum and Dance Performance**
1 s.h.
Dance repertory for the UI Afro-Cuban Drum and Dance Ensemble. Performance pieces based on dance, drumming, songs of the Afro-Cuban folkloric traditions. May participate in UI Afro-Cuban Drum and Dance Ensemble. Prerequisites: audition and 025:173 or 137:174 or 188:173 or 188:174. Same as 137:175.

**188:182 The Contemporary Dance Scene**
3 s.h.
Historical, theoretical, and practical elements of contemporary dance; the term "postmodern" and its associations with
dance, performing arts, contemporary culture; relationships between process and product, identity and subjectivity,
artistic intent and authorship, meaning and intertextuality; possibility of art as a form of dissent; theory and practice
placed in a dialectic; analysis and synthesis of previous research. Same as 137:182.

188:195 Arts Leadership Seminar 3 s.h.
Performing arts management and administrative principles, practical applications, trends in arts leadership and
advocacy. Prerequisite: (for 049:195) 049:109 or 049:111 or graduate standing in an arts discipline. Same as 049:195,

188:202 Theories of Dance and the Body 3 s.h.
Theoretical trends in studies of dance and physical bodies; performative and choreographic aspects of being. Same as
137:202.

188:275 Collaborative Performance 1-4 s.h.
Collaborative experience with advanced artists from varied disciplines that culminates in a final performance;
emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects. Same
as 049:275, 137:275.
Philosophies and Ethics of Politics, Law, and Economics

Coordinator: Diane Jeske
Undergraduate nondegree program: Certificate in Philosophies and Ethics of Politics, Law, and Economics
Web site: http://www.uiowa.edu/~people

The College of Liberal Arts and Sciences offers an interdisciplinary program that leads to the undergraduate Certificate in Philosophies and Ethics of Politics, Law, and Economics.

The Philosophies and Ethics of Politics, Law, and Economics (PEOPLE) Program is based on the assumption that societies institutionalize values; they guide conduct by regulating opportunities, prescribing behavior, and influencing beliefs and attitudes. The goal of the PEOPLE program is to help students understand and evaluate these complex relationships by examining them from a variety of perspectives.

The PEOPLE program may be especially attractive to students who are planning to attend law school after graduation. Students considering careers in planning, politics, or public administration also may find the PEOPLE program highly useful.

Undergraduates in economics, philosophy, political science, and sociology may discover that they will meet many of the PEOPLE program requirements in completing the requirements for their major or minor. However, a major or minor in one of these disciplines is not a requirement of the program.

Students who complete the PEOPLE program earn a certificate, and the notation "Certificate in the Philosophies and Ethics of Politics, Law, and Economics" appears on their transcripts. The certificate is awarded upon completion of a bachelor's degree. Holders of Iowa bachelor's degrees may return to complete the requirements for a certificate.

Certificate

The Certificate in Philosophies and Ethics of Politics, Law, and Economics requires 36 s.h. The final 18 s.h. used to complete the certificate must be taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the certificate.

Because of the program's multiple requirements, students are encouraged to begin the program as first-year students or sophomores; however, with careful planning, students who join the program as juniors can complete the requirements by their normal graduation date, especially if they already have taken several courses that satisfy PEOPLE requirements. Prospective certificate students should contact the PEOPLE program's coordinator.

The certificate program consists of two parts: the foundation, made up of six courses (18 s.h.), and the fields, also made up of six courses (18 s.h.). The foundation is the common element in the program. The five fields—economics, law, philosophy, political science, and sociology—provide opportunities for specialization.

FOUNDATION

Students must take the following six courses. The first two (026:036 Principles of Reasoning or 026:103 Introduction to Symbolic Logic, and 026:001 Problems of Moral Reasoning or 026:102 Introduction to Ethics) are best taken during the first or sophomore year.

One of these:

026:036 Principles of Reasoning 3 s.h.
026:103 Introduction to Symbolic Logic 3 s.h.

One of these:

026:001 Problems of Moral Reasoning 3 s.h.
026:102 Introduction to Ethics 3 s.h.

One of these:

026:034 Philosophy and the Just Society 3 s.h.
026:132 Introduction to Political Philosophy 3 s.h.
026:135 Philosophy of Law 3 s.h.

One of these:

030:020 Introduction to Politics 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
030:050 Introduction to Political Behavior 3 s.h.
030:070 Introduction to Political Communication 3 s.h.

One of these:
06E:001 Principles of Microeconomics 4 s.h.
06E:002 Principles of Macroeconomics 4 s.h.

One of these:
026:149 Undergraduate Seminar in Philosophy (requires consent of PEOPLE program director) 3 s.h.
033:153 Hard Cases: Science Policy and Values 3 s.h.
033:175/01H:182/024:161/091:192 Art, Law, and Ethics 3 s.h.

FIELDS

Students must choose two of the following fields and complete three courses in each.

Economics

One of these:
06E:104 Microeconomic Theory (if 06E:001 was taken for foundation requirement) 3 s.h.
06E:105 Macroeconomics (if 06E:002 was taken for foundation requirement) 3 s.h.

Two of these:
06E:119 Policy Analysis 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:172 Law and Economics (cannot be used to satisfy both economics and law field requirements) 3 s.h.
06E:176 Public Sector Economics 3 s.h.
06E:179 History of Economic Thought 3 s.h.

Philosophy

Three of these:
026:102 Introduction to Ethics (if not taken for foundation requirement) 3 s.h.
026:104 Introduction to Philosophy of Science 3 s.h.
026:132 Introduction to Political Philosophy (if not taken for foundation requirement) 3 s.h.
026:133 Philosophy of History 3 s.h.
026:135 Philosophy of Law (if not taken for foundation requirement) 3 s.h.
026:180 Analytic Ethics 3 s.h.
026:182 History of Ethics 3 s.h.
026:185 Political Philosophy 3 s.h.
026:196 Philosophy of the Human Sciences 3 s.h.

Political Science

One of these:
030:116 American Constitutional Law and Politics 3 s.h.
030:118 American Political Development 3 s.h.
030:119 Problems in American Politics 3 s.h.

One of these:
030:132 Modern Political Theory 3 s.h.
030:133 Postmodern Political Theory 3 s.h.
### Current Political Theory

3 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>030:138</td>
<td>Current Political Theory</td>
<td>3 s.h.</td>
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**One of these:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>030:126</td>
<td>American Public Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:136</td>
<td>Strategy in Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:152</td>
<td>The Legislative Process</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:153</td>
<td>The Judicial Process</td>
<td>3 s.h.</td>
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### Law

3 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>026:135</td>
<td>Philosophy of Law (if not taken for foundation or another field requirement)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:224</td>
<td>Comparative Law</td>
<td>3 s.h.</td>
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**One of these:**

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<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>144:143</td>
<td>Jurisprudence</td>
<td>3 s.h.</td>
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**Two of these:**

<table>
<thead>
<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>06E:172</td>
<td>Law and Economics (if not taken for economics field requirement)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:116</td>
<td>American Constitutional Law and Politics (if not taken for political science field requirement)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:193</td>
<td>Human Rights in the World Community</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:195</td>
<td>Introduction to Public International Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>144:142</td>
<td>Comparative Law</td>
<td>3 s.h.</td>
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</tbody>
</table>

Semester hours earned in PEOPLE courses taught by College of Law faculty members normally do not count toward requirements for a law degree.

### Sociology

3 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>034:001</td>
<td>Introduction to Sociology Principles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:009</td>
<td>Sociological Theory</td>
<td>3 s.h.</td>
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</table>

**Two of these:**

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>034:040</td>
<td>Criminology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:066</td>
<td>Social Inequality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:141</td>
<td>Juvenile Delinquency</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:149</td>
<td>Sociology of Criminal Punishment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:150</td>
<td>Political Sociology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:182</td>
<td>Sociology of Law</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Philosophies and Ethics of Politics, Law, and Economics Courses

**144:142 Comparative Law**  
2-3 s.h.

Comparative study of origins, development, and principal features of the world's main legal systems; common and civil law traditions; historical development of the main legal systems, their sources, ideologies, techniques; subjects important to international legal practice (e.g., international judicial assistance, application of foreign law in American courts; in-depth study of modern legal systems of the United States, Britain, France, Germany, Japan, Russia; introduction to other legal traditions, including preliterate tribal law, traditional Chinese and Islamic law. Same as 091:224.

**144:143 Jurisprudence**  
2-3 s.h.

Selected legal philosophies, with emphasis on legal positivism and natural law; relationship between law and morality. Same as 091:288.
Undergraduate Programs

The department offers a Bachelor of Arts and a minor in philosophy.

Undergraduate courses in philosophy are designed to impart knowledge of fundamental issues and main developments in philosophy while strengthening logical and analytic skills. A major in philosophy develops abilities useful for graduate or professional work in many fields—law, for example—and for any situation requiring clear, systematic thinking. A graduate degree is necessary for college teaching in philosophy.

Bachelor of Arts

The Bachelor of Arts in philosophy requires a minimum of 120 s.h., including at least 27 s.h. of work for the major. Courses numbered 026:061 Introduction to Philosophy through 026:198 Topics in Philosophy count toward the major. Students must complete the College of Liberal Arts and Sciences General Education Program.

All students complete the following courses.

- 026:103 Introduction to Symbolic Logic 3 s.h.
- 026:111 Ancient Philosophy 3 s.h.

One of these:

- 026:114 Seventeenth-Century Philosophy 3 s.h.
- 026:115 Modern Philosophy 3 s.h.
- 026:116 Eighteenth-Century Philosophy 3 s.h.

The final 12 s.h. in philosophy courses used to complete the major must be earned at The University of Iowa. The department may make exceptions for students who pursue approved study abroad during their senior year.

In addition to prerequisites listed for individual courses, considerations such as the order in which historical courses are taken are relevant to the effective structuring of the undergraduate major in philosophy. A student's department advisor or the director of undergraduate studies can provide more information.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one course in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: at least five courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: at least six courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The department administers an honors program for undergraduate students of superior ability. In order to be admitted to the honors program in philosophy, a student must be a member of the University of Iowa Honors Program, which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa
Honors Program for more information), and must have taken and passed at least three philosophy courses for the major. In order to graduate with honors in philosophy, a student must complete the regular requirements for an undergraduate major in philosophy with a g.p.a. of at least 3.40 in philosophy courses and must write an acceptable honors thesis on a significant topic in philosophy that interests him or her. Contact the honors advisor for more information.

Minor

The minor in philosophy requires a minimum of 15 s.h. in philosophy courses, including 12 s.h. in 100-level courses offered by the Department of Philosophy at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Contact the undergraduate studies director for more information.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in philosophy. Admission is granted only for the Ph.D. program. The M.A. is not offered as a terminal degree; it is awarded to students as they work successfully toward the Ph.D.

The graduate program is designed to train teachers and scholars in philosophy. The main areas in the graduate curriculum are metaphysics, epistemology, history of philosophy, logic, philosophy of science, and value theory.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Master of Arts

The Master of Arts in philosophy requires a minimum of 30 s.h. of graduate credit and is offered without thesis. The M.A. is not offered as a terminal degree; it is awarded to students as they work successfully toward the Ph.D.

Requirements include courses in metaphysics, epistemology, history of philosophy, ethics, logic, philosophy of science, and value theory. There is no foreign language requirement. Students must take an oral final examination. Contact the graduate studies director for more information.

Joint M.A./J.D.

The Department of Philosophy and the College of Law offer a joint Juris Doctor/Master of Arts. Students in the joint J.D./M.A. program may count 12 s.h. earned in the joint program toward both degrees. Students must earn 18 of the 30 s.h. required for the M.A. in graduate-level philosophy courses (the usual requirement is 24 s.h.). They also must earn a minimum of 36 s.h. in undergraduate and graduate philosophy courses combined (the usual requirement is 42 s.h.).

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

See Juris Doctor and Joint J.D./Graduate Degrees (College of Law) in the Catalog.

Doctor of Philosophy

The Ph.D. requires a minimum of 72 s.h. of graduate credit. Candidacy for the doctoral program is determined by a formal vote of the entire faculty of the Department of Philosophy, usually after the student has completed three semesters of graduate study in residence.

Requirements include courses in metaphysics, epistemology, history of philosophy, logic, philosophy of science, and value theory. Students are required to take a comprehensive examination, including both written and oral components, that covers their area of specialization. Upon successfully completing the exam, students begin work on a prospectus for their dissertation. There is no foreign language requirement. Contact the graduate studies director for more information.

Philosophy Courses

For more detailed descriptions of undergraduate and graduate courses offered during a given semester or summer session, visit the University’s ISIS web site before early registration.

For Undergraduates
The following courses are open only to undergraduates.

**026:001 Problems of Moral Reasoning**
Ethical thought, with emphasis on its implications for contemporary moral controversies. 3 s.h.

**026:029 First-Year Seminar: Paradoxes**
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing. 1 s.h.

**026:033 Philosophy and Human Nature**
Human nature and its relation to society, knowledge, religion, science, and freedom; philosophical and historical examination. GE: Historical Perspectives. 3 s.h.

**026:034 Philosophy and the Just Society**
The nature of individuals and governments and the obligations they have to each other; philosophical and historical examination of theories from Plato through the 19th century. GE: Historical Perspectives. 3 s.h.

**026:036 Principles of Reasoning**
Elementary logic and its applications. GE: Quantitative or Formal Reasoning. 3 s.h.

**026:061 Introduction to Philosophy**
Issues and arguments; topics may include rational belief, evidence, the self, causation, and the presuppositions of religion. GE: Humanities. 3 s.h.

For Undergraduate and Graduate Students

The following courses are closed to first-year students.

**026:102 Introduction to Ethics**
Analytical and historical introduction to ethical theories about issues such as the nature of goodness, the nature of right conduct. GE: Humanities. 3 s.h.

**026:103 Introduction to Symbolic Logic**
Main ideas and techniques of formal deduction. 3 s.h.

**026:104 Introduction to Philosophy of Science**
Fundamental issues in scientific method, inductive reasoning, explanation, the distinctive nature of science. 3 s.h.

**026:111 Ancient Philosophy**
Main trends and major figures, such as Plato and Aristotle. 3 s.h.

**026:112 Medieval Philosophy**
Main trends and major figures, such as Augustine and Aquinas. Same as 16E:114. 3 s.h.

**026:114 Seventeenth-Century Philosophy**
Main trends, central arguments, major positions; Bacon and Descartes to Leibniz and Locke. 3 s.h.

**026:115 Modern Philosophy**
Main trends and major figures from Descartes to Kant. 3 s.h.

**026:116 Eighteenth-Century Philosophy**
Main trends, central arguments, major positions; Berkeley to Kant. 3 s.h.

**026:118 Twentieth-Century Philosophy**
Main trends and major figures. 3 s.h.

**026:131 Aesthetics**
Major problems in philosophy of the arts. 3 s.h.
026:132 Introduction to Political Philosophy  
Major problems.

026:133 Philosophy of History  
Major problems: objectivity, historiographic methods and theory of interpretation, nature of historical explanations, reduction.

026:134 Philosophy of Religion  
Medieval to contemporary treatments of central issues: the nature of faith; the existence and nature of God; religion and ethics; the interpretation of religious texts. Same as 032:146.

026:135 Philosophy of Law  
Introduction; the nature of law, legal authority, legal reasoning; issues in criminal law, such as punishment, responsibility; issues in property law; constitutional law. Prerequisite: 026:034 or 026:102 or 026:132 or consent of instructor.

026:138 Philosophical Problems of Artificial Intelligence  
Major issues and controversies.

026:141 Existentialist Philosophy  
Main ideas of existentialism; emphasis on Kierkegaard, Nietzsche, Heidegger, Sartre.

026:143 Philosophy East and West  
Comparative analysis of ideas in Eastern and Western philosophy.

026:144 Indian Philosophy  
Main ideas, major texts. Same as 032:174.

026:145 Buddhist Philosophy  
Introduction to main ideas. Same as 032:175.

026:147 Philosophical Issues  
A philosophical topic or controversy.

026:148 Readings in Philosophy  
Prerequisite: honors standing.

026:149 Undergraduate Seminar in Philosophy  
Selected problems. Prerequisite: consent of instructor.

026:150 Topics in Indian Philosophy  
A single Indian philosopher or philosophical problem. Prerequisite: consent of instructor.

026:151 Topics in Ancient Philosophy  
A single ancient philosopher or philosophical problem. Prerequisite: consent of instructor.

026:152 Plato  
Main ideas, major texts. Prerequisite: consent of instructor.

026:153 Aristotle  
Main ideas, major texts. Prerequisite: consent of instructor.

026:158 Descartes  
Major works, such as the Discourse on Method, as well as lesser known works, such as The World. Prerequisite: consent of instructor.

026:160 Spinoza and Leibniz  
Main ideas, major texts. Prerequisite: consent of instructor.
026:163 Berkeley and Hume
Comparative and critical examination of metaphysical and epistemological views of 18th-century empiricists George Berkeley and David Hume; theory of ideas, perception, skepticism, limits of knowledge, scientific and philosophical method, role of God in Berkeley's and Hume's philosophical systems.

026:166 Kant
Main ideas, major texts of Kant's metaphysics and epistemology. Prerequisite: consent of instructor.

026:173 Heidegger
Main ideas and major texts of Heidegger; early and later periods, particular attention to Being and Time; focus on Heidegger's analyses of being and being-in-the-world. Prerequisite: consent of instructor.

026:174 Sartre
Phenomenological and existentialist works. Prerequisite: consent of instructor.

026:176 Frege and Russell
Main ideas, major texts. Prerequisite: consent of instructor.

026:177 Wittgenstein
Main ideas, major texts. Prerequisite: consent of instructor.

026:179 Quine
Major ideas, major texts. Prerequisite: consent of instructor.

026:180 Analytic Ethics
Topics in contemporary ethics. Prerequisite: consent of instructor.

026:182 History of Ethics
Selected topics in the history of philosophical ethics. Prerequisite: consent of instructor.

026:184 Russian Thinkers
Same as 041:189, 048:189.

026:185 Political Philosophy
Selected topics. Prerequisite: consent of instructor.

026:186 Metaphysics
Fundamental topics; major works, both classical and contemporary. Prerequisite: consent of instructor.

026:187 Epistemology
Contemporary topics. Prerequisite: consent of instructor.

026:188 Philosophy of Mind
Contemporary topics. Prerequisite: consent of instructor.

026:189 Philosophy of Language
Contemporary topics. Prerequisite: consent of instructor. Same as 103:163.

026:190 Philosophical Foundations of Cognitive Science
Processes leading from stimulus to behavioral response in cognitive or mentalistic terms; motivations for cognitive explanations, nature of cognitive architecture, problem of mental representation; additional topics may include individuation of inputs and outputs, role of consciousness in cognition, relation between language and thought, nature of concepts. Prerequisite: consent of instructor.

026:191 Mathematical Logic
Presentation of central metatheorems relating to decidability, completeness, model theory; second-order logic. Prerequisite: consent of instructor.

026:192 Modal Logic
3 s.h.
Formal techniques developed and applied to problems in analysis and modal semantics; related philosophical issues. Prerequisite: consent of instructor.

026:194 Philosophy of Science
Central topics--for example, scientific explanation, confirmation, the meaning of scientific theories; survey of major 20th-century developments in these areas. Prerequisite: consent of instructor.

026:196 Philosophy of the Human Sciences
Explanation and understanding, theories and reduction, values and ideology, freedom and causality. Prerequisite: consent of instructor.

026:198 Topics in Philosophy
A single philosopher or philosophical problem. Prerequisite: consent of instructor.

Primarily for Graduate Students
All of the following courses are repeatable.

026:220 Seminar: Philosophy of Language

026:221 Seminar: Metaphysics

026:222 Seminar: Epistemology

026:223 Seminar: Philosophical Analysis

026:224 Seminar: Philosophy of Science

026:225 Seminar: Philosophy of Religion

026:226 Seminar: Ethics

026:227 Seminar: Ancient Philosophy

026:229 Seminar: Modern Philosophy

026:245 Research: Value Theory

026:247 Research: Metaphysics and Epistemology

026:249 Research: Logic and Philosophy of Science

026:251 Research: History of Philosophy

026:253 Thesis
Physics and Astronomy

Chair: Mary Hall Reno

Professors: David R. Andersen (Electrical and Computer Engineering/Physics and Astronomy), Thomas F. Boggess (Physics and Astronomy/Electrical and Computer Engineering), Michael E. Flatté, John A. Goree, Donald A. Gurnett (Carver/James A. Van Allen Professor of Physics), Richard Hichwa (Radiology/Physics and Astronomy), Philip Kaaret, Paul D. Kleiber (Harriet B. and Harold S. Brady Professor of Laser Physics), Craig A. Kletzing, William H. Klink (Physics and Astronomy/Mathematics), Karl E. Lonngren (Electrical and Computer Engineering/Physics and Astronomy), Mark T. Madsen (Radiology/Physics and Astronomy), Usha Mallik, Robert L. Merlino, Yannick Meurice, Robert L. Mutel, Yasar Onel, Wayne N. Polyzou, Mary Hall Reno, Vincent G.J. Rodgers, John W. Schweitzer, Jack D. Scudder, Frederick N. Skiff, Arthur L. Smirl (Physics and Astronomy/Electrical and Computer Engineering, Lowell Battershell Chair in Laser Engineering), Steven R. Spangler


Associate professors: Kenneth G. Gayley, Jane M. Nachtman, Charles R. Newsom, John P. Prineas, Markus Wohlgenannt

Assistant professors: Gregory Howes, Cornelia C. Lang, Randall McEntaffer, Craig Pryor

Undergraduate degrees: B.A., B.S. in Physics, Astronomy; B.S. in Applied Physics

Undergraduate nondegree programs: Minor in Physics, Astronomy

Graduate degrees: M.S. in Physics, Astronomy; Ph.D. in Physics (including specialization in Astronomy)

Web site: http://www.physics.uiowa.edu

The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of its subjects. It also provides research facilities and guidance in selected specialties for advanced individual scholarly work. Total departmental enrollment is approximately 1,700 each semester of the academic year and 150 during the summer session. All courses and advanced laboratories are taught by faculty members. Faculty members also supervise associated laboratories taught by graduate students.

Beyond the elementary level, typical course enrollment is 15-20; there is ample opportunity for individual work. Special introductory courses are offered for majors in physics and astronomy and for others with special interest in these subjects. There are about 80 undergraduate majors, half of whom are honors students, and 60 graduate students in physics or astronomy.

About 70 percent of graduates with bachelor's degrees pursue advanced study. Others find positions in government and industrial laboratories and in secondary school teaching. Some use their training as the basis for careers in other fields.

Graduates with an M.S. or Ph.D. in physics or astronomy have opportunities for employment in universities, colleges, and research laboratories in government and industry.

Undergraduate Programs

The department offers a Bachelor of Science, a Bachelor of Arts, and an undergraduate minor in physics and in astronomy. It also offers a double major in physics and astronomy and a Bachelor of Science in applied physics.

Bachelor of Science in Physics

The Bachelor of Science in physics requires a minimum of 120 s.h., including 60 s.h. of work for the major. It provides preparation for careers in industry, employment in research laboratories, and graduate study in physics and related sciences.

The B.S. major in physics requires the following courses or their equivalents. Students satisfy the following mathematics and laboratory requirements as well as the "Other Required Courses." The department encourages students to do additional work. Students also must complete the College of Liberal Arts and Sciences General Education Program.

MATHEMATICS

22M:025-22M:026 Calculus I-II 8 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
22M:028 Calculus III 4 s.h.

LABORATORY

029:132 Intermediate Laboratory 3 s.h.

One of these:

029:128 Electronics 4 s.h.
029:133 Advanced Laboratory 3 s.h.
Students who choose 029:128 Electronics as one of their two required laboratory courses are advised to take it before they take 029:132 Intermediate Laboratory.

**OTHER REQUIRED COURSES**

029:027-029:028 Physics I-II  
029:029-029:030 Physics III-IV  
029:115 Intermediate Mechanics  
029:118 Statistical Physics  
029:129-029:130 Electricity and Magnetism I-II  
029:140-029:141 Introduction to Quantum Mechanics I-II

Two of these:

029:119 Introduction to Astrophysics I  
029:120 Introduction to Astrophysics II  
029:128 Electronics (may not be repeated)  
029:133 Advanced Laboratory  
029:171-029:172 Mathematical Methods of Physics I-II  
029:180 Introductory Optics  
029:182 Electro Optics  
029:184 Optical Signal Processing  
029:186 Radio Astronomy  
029:192 Elementary Particles and Nuclear Physics  
029:193 Introductory Solid State Physics  
029:194 Plasma Physics I  
029:195 Plasma Physics II  
029:196 Computational Physics

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements listed above, including further work in mathematics. In planning this work, they should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may apply a maximum of 50 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning a B.S. with a double major in physics and astronomy may count more than 50 s.h. earned in the Department of Physics and Astronomy to the 120 s.h. required for graduation, but they must earn at least 56 s.h. in course work outside the department in order to graduate.

**Bachelor of Arts in Physics**

The Bachelor of Arts in physics requires a minimum of 120 s.h., including 48 s.h. of work for the major. It is designed for students who wish to gain knowledge of physics but do not plan a research-oriented career in physics. The program is appropriate for those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching; see Science Education (College of Liberal Arts and Sciences) in the Catalog.

The B.A. requires fewer physics courses than the B.S. and provides for a wider choice of electives.

The B.A. major requires the following courses or their equivalents. The department encourages students to do additional work. Students also must complete the College of Liberal Arts and Sciences General Education Program.

22M:025-22M:026 Calculus I-II  
029:027-029:028 Physics I-II  
029:029-029:030 Physics III-IV  
029:115 Intermediate Mechanics  
029:118 Statistical Physics  
029:132 Intermediate Laboratory
One of these:

- 029:128 Electronics 4 s.h.
- 029:129 Electricity and Magnetism I 3 s.h.

Additional science course work in a thematic area as approved by the student's advisor or the course work required for teacher licensure 12 s.h.

Students may earn a B.A. with a double major in the department; see "B.S. or B.A. with Double Major in Physics and Astronomy" below.

**Bachelor of Science in Applied Physics**

The Bachelor of Science in applied physics requires a minimum of 120 s.h., including 60-83 s.h. of work for the major. It is intended primarily for students interested in a broad program of study in physics combined with a significant concentration of courses in an applied field that has immediate application to industry. The degree provides a foundation for a wide range of employment opportunities in high-technology industries, including research and development, product design and testing, sales, and quality control. It also is designed to include exposure to physics sufficient to allow the student to continue with graduate studies in either physics or astronomy.

The program offers four areas of concentration: optics, solid-state electronics, computer science, and medical physics. A student also may design a customized concentration area in close consultation with his or her advisor, and with departmental approval.

An essential component of each concentration is successful completion of a one-semester industrial internship or practicum experience in a research laboratory (an applied physics thesis is required for the latter option). This requirement may result in the need for a ninth semester to fulfill all requirements.

Because of this, the Four-Year Graduation Plan is not available for the B.S. in applied physics. Well-prepared students will be able to complete the degree in four years. Students should work closely with their advisors on a graduation plan.

The B.S. in applied physics requires the following courses. Students are encouraged to take additional course work. Advisors can suggest electives that will enrich programs and help students prepare for graduate work. Students also must complete the College of Liberal Arts and Sciences General Education Program.

**COMMON REQUIREMENTS**

In addition to satisfying mathematics requirements (see listings under Bachelor of Science in Physics), students must successfully complete the following courses or their equivalents.

- 029:027-029:028 Physics I-II 8 s.h.
- 029:029-029:030 Physics III-IV 8 s.h.
- 029:115 Intermediate Mechanics 3 s.h.
- 029:129 Electricity and Magnetism I 3 s.h.
- 029:140 Introduction to Quantum Mechanics I 3 s.h.

**COMPUTER SCIENCE CONCENTRATION**

- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22C:021 Computer Science II: Data Structures 4 s.h.
- 029:118 Statistical Physics 3 s.h.
- 029:128 Electronics 4 s.h.
- 029:130 Electricity and Magnetism II 3 s.h.
- 029:132 Intermediate Laboratory 3 s.h.

One of these:

- 22C:022 Object-Oriented Software Development 4 s.h.
- 22C:031 Algorithms 3 s.h.
- 22C:060 Computer Organization 3 s.h.
Two additional 100-level computer science courses

OPTICS CONCENTRATION

029:118 Statistical Physics  3 s.h.
029:128 Electronics  4 s.h.
029:130 Electricity and Magnetism II  3 s.h.
029:132 Intermediate Laboratory  3 s.h.
029:180 Introductory Optics  3 s.h.

Two of these:

029:182 Electro Optics  3 s.h.
029:184 Optical Signal Processing  3 s.h.
029:193 Introductory Solid State Physics  3 s.h.

SOLID-STATE ELECTRONICS CONCENTRATION

029:118 Statistical Physics  3 s.h.
029:193 Introductory Solid State Physics  3 s.h.
055:032 Introduction to Digital Design  3 s.h.
055:040 Linear Systems I  3 s.h.
055:041 Electronic Circuits  4 s.h.
057:017 Computers in Engineering  3 s.h.
057:018 Principles of Electronic Instrumentation  4 s.h.
059:006 Engineering Problem Solving II  3 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits  3 s.h.

One of these:

029:130 Electricity and Magnetism II  3 s.h.
029:141 Introduction to Quantum Mechanics II  3 s.h.

MEDICAL PHYSICS CONCENTRATION

002:010-002:011 Principles of Biology I-II  8 s.h.
004:011-004:012 Principles of Chemistry I-II  8 s.h.
004:121-004:122 Organic Chemistry I-II  6 s.h.
004:141 Organic Chemistry Laboratory  3 s.h.
029:128 Electronics  4 s.h.
029:132 Intermediate Laboratory  3 s.h.

One of these:

22S:101 Biostatistics  3 s.h.
171:161 Introduction to Biostatistics  3 s.h.

One of these:

029:105 Special Topics in Physics (physics of the body)  3 s.h.
029:118 Statistical Physics  3 s.h.
029:130 Electricity and Magnetism II  3 s.h.
029:133 Advanced Laboratory  3 s.h.
029:141 Introduction to Quantum Mechanics II  3 s.h.
Two additional advanced biology courses

**Bachelor of Science in Astronomy**

The Bachelor of Science in astronomy requires a minimum of 120 s.h., including 64 s.h. of work for the major. It provides a balanced and integrated program of astronomy, mathematics, and physics courses that prepare students for advanced study in astronomy or astrophysics. It also serves as an interesting choice of major for a liberal arts education.

The B.S. in astronomy requires the following courses or their equivalents. Students also must complete the College of Liberal Arts and Sciences General Education Program.

### MATHEMATICS

- 22M:025-22M:026 Calculus I-II  
  8 s.h.
- 22M:027 Introduction to Linear Algebra  
  4 s.h.
- 22M:028 Calculus III  
  4 s.h.

### OTHER REQUIRED COURSES

- 029:027-029:028 Physics I-II  
  8 s.h.
- 029:029-029:030 Physics III-IV  
  8 s.h.
- 029:061-029:062 General Astronomy I-II  
  8 s.h.
- 029:115 Intermediate Mechanics  
  3 s.h.
- 029:119-029:120 Introduction to Astrophysics I-II (classes are offered alternate years, students are responsible for registering when the class is available)  
  6 s.h.
- 029:129-029:130 Electricity and Magnetism I-II  
  6 s.h.
- 029:137 Astronomical Laboratory (classes are offered alternate years, students are responsible for registering when the class is available)  
  3 s.h.
- 029:140 Introduction to Quantum Mechanics I  
  3 s.h.

One of these:

- 029:128 Electronics  
  4 s.h.
- 029:132 Intermediate Laboratory  
  3 s.h.

One of these:

- 029:141 Introduction to Quantum Mechanics II  
  3 s.h.
- 029:194 Plasma Physics I  
  3 s.h.

Undergraduate majors who plan to pursue graduate study are advised to go as far as they can beyond the minimum requirements listed above, by taking one or more of the courses listed below. In planning this work, they should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may apply a maximum of 50 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

Students earning a B.S. with a double major in physics and astronomy may count more than 50 s.h. earned in the Department of Physics and Astronomy to the 120 s.h. required for graduation, but they must earn at least 56 s.h. in course work outside the department in order to graduate.

- 029:118 Statistical Physics  
  3 s.h.
- 029:141 Introduction to Quantum Mechanics II  
  3 s.h.
- 029:171-029:172 Mathematical Methods of Physics I-II  
  6 s.h.
- 029:180 Introductory Optics  
  3 s.h.
- 029:186 Radio Astronomy  
  3 s.h.
Bachelor of Arts in Astronomy

The Bachelor of Arts in astronomy requires a minimum of 120 s.h., including 52 s.h. of work for the major. It is designed for students who wish to gain considerable knowledge of astronomy but who do not plan a research-oriented career in the field. The B.A. is appropriate for those planning careers in secondary school science teaching or science-related administration; see Science Education (College of Liberal Arts and Sciences) in the Catalog. It also is appropriate for those preparing for professional school. The B.A. requires fewer physics and mathematics courses than the B.S., and thus provides for a wider choice of electives.

The B.A. in astronomy requires the following courses or their equivalents. Students also must complete the College of Liberal Arts and Sciences General Education Program.

22M:025-22M:026 Calculus I-II 8 s.h.
029:027-029:028 Physics I-II 8 s.h.
029:029-029:030 Physics III-IV 8 s.h.
029:061-029:062 General Astronomy I-II 8 s.h.
029:115 Intermediate Mechanics 3 s.h.
029:119-029:120 Introduction to Astrophysics I-II 6 s.h.
029:132 Intermediate Laboratory 3 s.h.
029:137 Astronomical Laboratory 3 s.h.

One of these:
029:118 Statistical Physics 3 s.h.
029:180 Introductory Optics 3 s.h.

One of these:
029:128 Electronics 4 s.h.
029:129 Electricity and Magnetism I (requires vector calculus as prerequisite) 3 s.h.

Students may earn a B.A. with a double major in the department; see "B.S. or B.A. with Double Major in Physics and Astronomy" below.

B.S. or B.A. with Double Major in Physics and Astronomy

Students working toward a Bachelor of Science or Bachelor of Arts with a double major in physics and astronomy must complete all requirements for both majors and must earn a minimum of 56 s.h. outside the Department of Physics and Astronomy in order to graduate. Students interested in earning a double major should consult with their advisors. See "Earning a Degree" in the College of Liberal Arts and Sciences Student Academic Handbook.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

B.A. in Astronomy

Before the third semester begins: math through calculus I and II, physics I and II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, at least one more course in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education
courses, and a sufficient number of semester hours to graduate

B.S. in Astronomy

Before the third semester begins: calculus I and II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: math through vector calculus, physics III and IV, linear algebra, two other courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. and B.S. in Physics

Before the third semester begins: calculus II, physics II, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: physics III and IV, introduction to linear algebra, calculus III, up to two more courses in the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two to four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two or three more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Junior and senior physics and astronomy majors who are members of the University of Iowa Honors Program may take 6-8 s.h. of 029:099 Undergraduate Research and conduct an investigation with the guidance of a faculty member as part of their programs for the B.A. or B.S. with honors in physics, applied physics, or astronomy. They must present a written research report (honors thesis) and describe the results of the research at a departmental seminar.

Membership in the University of Iowa Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

Minor in Physics

The minor in physics requires a minimum of 15 s.h. in physics, including 12 s.h. taken at The University of Iowa, chosen from 029:029 Physics III, 029:030 Physics IV, and 100-level physics courses. Students must maintain a g.p.a. of at least 2.00 for all work in the minor. Course work in the minor may not be taken pass/nonpass. Before enrolling in 029:029 Physics III students must complete that course’s prerequisites (029:027 Physics I and 029:028 Physics II, or 029:081 Introductory Physics I and 029:082 Introductory Physics II).

There is no minor offered in applied physics.

Minor in Astronomy

The minor in astronomy requires a minimum of 15 s.h. in astronomy and physics courses, including 12 s.h. of upper-level course work and 12 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 for all work in the minor. Course work in the minor may not be taken pass/nonpass.

The upper-level course work must include 6 s.h. chosen from 029:119 Introduction to Astrophysics I, 029:120 Introduction to Astrophysics II, and 029:137 Astronomical Laboratory. Remaining work may be chosen from any 100-level astronomy or physics courses.

Graduate Programs

The department offers a Master of Science and a Doctor of Philosophy in physics, and a Master of Science in astronomy. Students who wish to pursue a program in astronomy beyond the M.S. may qualify for a Ph.D. in physics with a specialization and dissertation in astronomy or astrophysics. An M.S. is not prerequisite to a Ph.D.
All graduate students who wish to pursue a Ph.D. in physics must pass the qualifying exam (see "Doctor of Philosophy in Physics").

Each entering graduate student is assigned a faculty advisor, who assists in preparing a plan of study and in guiding the student's progress.

The Department of Physics and Astronomy participates in an interdisciplinary doctoral program, the Program in Applied Mathematical and Computational Sciences (see Graduate College in the Catalog).

**Master of Science in Physics**

The Master of Science in physics requires a minimum of 30 s.h. of graduate credit. It is offered with thesis, or critical essay, or by examination. The M.S. with thesis requires a thesis based on an original experimental or theoretical investigation by the student. The M.S. with critical essay requires a critical essay on the literature of a particular area of physics.

The M.S. may be a terminal degree or a step toward a Ph.D. In either case, the final examination is oral, conducted by a committee of three faculty members.

Students in the physics M.S. with thesis program earn the required 30 s.h. of graduate credit in courses numbered 170 or above, with at least 15 s.h. at the 200 level, a g.p.a. of at least 3.00, and a thesis based on an original experimental or theoretical investigation by the student. Students may earn a maximum of 6 s.h. in 029:220 Individual Critical Study or 029:281 Research: Physics. Up to one-third of the graduate program may be taken in related scientific fields other than physics and mathematics (e.g., chemistry, astronomy, geology, engineering).

Students in the physics M.S. with critical essay program earn the required 30 s.h. of graduate credit in courses numbered 170 or above, with at least 15 s.h. at the 200 level, a g.p.a. of at least 3.00, an independent study of the literature on a chosen topic, and preparation of a critical essay on that topic. Students may earn a maximum of 4 s.h. in 029:220 Individual Critical Study or 029:281 Research: Physics. Up to one-third of the graduate program may be taken in related scientific fields other than physics and mathematics (e.g., chemistry, astronomy, geology, engineering).

Students in the physics M.S. by examination program earn the required 30 s.h. of graduate credit with 18 s.h. in the core graduate courses 029:205 Classical Mechanics, 029:212 Statistical Mechanics I, 029:213 Classical Electrodynamics I, 029:214 Classical Electrodynamics II, 029:245 Quantum Mechanics I, and 029:246 Quantum Mechanics II, and the remaining 12 s.h. in courses numbered 170 or above. Students must maintain a g.p.a. of at least 3.00 in the core graduate courses. Students may earn a maximum of 4 s.h. in 029:220 Individual Critical Study or 029:281 Research: Physics. Up to one-third of the graduate program may be taken in related scientific fields other than physics and mathematics (e.g., chemistry, astronomy, geology, engineering).

The student's plan of study should provide for as much advanced work as aptitude and previous preparation permit.

**Master of Science in Astronomy**

The Master of Science in astronomy requires a minimum of 30 s.h. of graduate credit. It is offered either with or without thesis. The M.S. may be a terminal degree or a step toward a Ph.D. in physics with specialization in astronomy or astrophysics. In either case the final examination is oral, conducted by a committee of three faculty members.

Students in the astronomy M.S. with thesis program earn the required 30 s.h. in courses numbered 170 or above, with at least 15 s.h. at the 200 level, and a g.p.a. of at least 3.00. The 30 s.h. must include at least 6 s.h. chosen from 029:232 Theoretical Astrophysics I, 029:233 Theoretical Astrophysics II, 029:234 Stellar Structure and Evolution, and 029:235 Special Topics in Astrophysics. Students may earn a maximum of 6 s.h. in 029:220 Individual Critical Study and 029:282 Research: Astronomy. Seminars do not count for credit toward the 30 s.h. requirement. Up to one-third of the course work may be in graduate courses in related fields, such as meteorology, geology, and electrical engineering; selection of such courses is encouraged.

Students in the astronomy M.S. nonthesis program earn 18 s.h. of the required 30 s.h. in the core graduate courses 029:205 Classical Mechanics, 029:213 Classical Electrodynamics I, 029:214 Classical Electrodynamics II, 029:232 Theoretical Astrophysics I, 029:233 Theoretical Astrophysics II, 029:234 Stellar Structure and Evolution, and 029:235 Special Topics in Astrophysics. Students must maintain a g.p.a. of at least 3.00 in the core graduate courses. Students may earn a maximum of 4 s.h. in 029:220 Individual Critical Study and 029:282 Research: Astronomy. Seminars do not count toward the required 30 s.h. Up to one-third of the course work may be in graduate courses in related fields, such as meteorology, geology, and electrical engineering; selection of such courses is encouraged.

**Doctor of Philosophy in Physics**

The Doctor of Philosophy in physics requires a minimum of 72 s.h. of graduate credit.
Graduate students who wish to pursue a Ph.D. in physics must pass a qualifying examination in all principal areas of physics at the level of first-year graduate work. The examination, which may be repeated only once, is given each year before the beginning of the fall semester. Students must take the exam for the first time no later than the start of their third year of graduate study.

All Ph.D. students must take comprehensive examinations; participate in advanced seminars; do original research in experimental physics, theoretical physics, or astrophysics; and prepare and defend a written dissertation based on this work.

The program of study for the Ph.D. with a major in physics includes thorough course work in both classical and quantum physics for all students, whether their specialized research is to be in an experimental or a theoretical area.

Students must take at least 24 s.h. of 200-level courses in the department, excluding 029:220 Individual Critical Study, 029:281 Research: Physics, 029:282 Research: Astronomy, and seminars. The following courses are required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>029:171-029:172</td>
<td>Mathematical Methods of Physics I-II (students who pass a written examination are exempt from the requirement to take this sequence)</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>029:205</td>
<td>Classical Mechanics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>029:212</td>
<td>Statistical Mechanics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>029:213-029:214</td>
<td>Classical Electrodynamics I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>029:245-029:246</td>
<td>Quantum Mechanics I-II</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

Advanced mathematics, such as complex variables and tensor analysis, is used freely in these courses. An introduction is given in 029:171 Mathematical Methods of Physics I and 029:172 Mathematical Methods of Physics II. The selection of less advanced course work depends on the adequacy of a student's preparation for graduate work; students' choice of more advanced and specialized courses depends on the direction in which their interests develop.

After a student has chosen a research specialty, he or she must submit a formal thesis proposal and defend the proposal in an oral comprehensive exam. The appropriate thesis advisor then becomes the candidate’s general advisor and the chair of the comprehensive and final examination committee. The comprehensive exam must be taken before the beginning of the fourth year of graduate study.

Ph.D. candidates are not recommended for the degree until they have written the dissertation in proper form for formal publication and have submitted it for publication, with the approval of the research advisor, to a widely distributed, refereed scientific journal.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Students qualified for graduate study are encouraged to apply for fellowships and assistantships. Contact the Department of Physics and Astronomy chair.

Research, Facilities

The department has an excellent library and a number of well-equipped laboratories and observatories, as well as a student computer cluster for which students can obtain accounts. Faculty, students, and staff access national supercomputers via the Internet. The central machine shop is fully equipped and staffed by skilled instrument makers and machinists, and there are electronics and machine shops for use by advanced students and research staff.

Experimental research is conducted in astronomy (optical, radio, and X-ray), atomic and molecular physics, condensed matter physics, elementary particle physics, laser physics, medical physics, plasma physics, and space physics. Extensive facilities are available for construction of specialized research equipment and for data processing and analysis.

State-of-the-art semiconductor materials and devices are grown in two molecular beam epitaxy machines. Ultrafast laser techniques are developed and used to probe electron transport, energy relaxation, recombination, and spin dynamics in the novel nanostructures grown in these machines. Experiments also are conducted on laser-induced coherent phenomena and coherent control of charge carriers in semiconductor nanostructures. The experimental condensed matter program is closely coordinated with the condensed matter theory group.

Plasma physics is an active area of experimental and theoretical research. Laboratory experiments studying plasma processes of importance in various space and astrophysical plasmas are performed in a Q machine, including...
experiments on waves and instabilities in dusty plasmas. Additional laboratory and microgravity experiments with
dusty plasmas include studies of Coulomb crystals, shocks, and complex fluids. Glow discharges for plasma
processing applications are studied using laser diagnostics and numerical simulations. Wave propagation and plasma
particle dynamics also are studied in collisionless plasmas through laboratory experiments. Laser techniques are
developed for measuring plasma flow and following particle orbits. Plasma theory efforts include analytical and
numerical investigations of magnetic reconnection and turbulence in space and astrophysical plasmas; collaboration
with laboratory and space plasma experimental groups in strongly coupled dusty plasmas, waves, and instabilities; and
free electron lasers and hydrodynamic turbulence.

State-of-the-art laser systems are available for high-resolution spectroscopic measurement and ultrafast studies of
molecular structure, for collisional relaxation and nonlinear optical effects in atomic and molecular systems, and for
plasma diagnostics.

Experimental research in elementary particle physics is carried out at Fermi National Accelerator Laboratory, Stanford
Linear Accelerator Center, CERN in Switzerland, and other international laboratories. The present generation of
high-energy experiments has been designed to probe both the strong nuclear force and the weak interactions.

The department is well-equipped for research and instruction in observational astronomy. The primary optical
instrument is a fully automated 15-inch telescope at a dark-sky site in Arizona. The telescope is equipped with CCD
cameras and a variety of filters. There are 3-meter and 4.5-meter radio telescopes on the roof of Van Allen Hall, which
are used for instruction and student research projects.

Research programs in galactic and extragalactic radio astronomy are carried out using the facilities of the National
Radio Astronomy Observatory, including the Very Large Array and the Very Long Baseline Array, one element of which
is 10 miles north of campus. Current long-term research activities include studies of the center of the Milky Way
galaxy; investigations of extragalactic radio sources; the formation of powerful winds in young, luminous stars;
radio-wave scattering in the interstellar and interplanetary media; and interacting binary stars. A research program in
X-ray astronomy has been established, and there is a laboratory for instrument development. Research topics in X-ray
astronomy concentrate on observations of X-ray emission from black holes and supernova remnants, using existing
spacecraft.

Active theoretical research is carried on in astrophysics; atomic, molecular, and optical physics; condensed matter
physics; elementary particle physics; laser physics; mathematical physics; nuclear physics; plasma physics; and space
physics. An active mathematical physics seminar fosters the exchange of ideas between mathematics and physics.

The primary emphasis of Iowa's program in experimental and theoretical space physics is on studies of cosmic and
heliospheric physics, magnetospheric physics, and magnetosphere-ionosphere interactions. Facilities are available for
designing and constructing spacecraft instruments. Investigators in the department have flown instruments for studying
plasmas, energetic charged particles, auroral images, plasma waves, and radio emissions on a wide variety of
terrestrial and planetary spacecraft, including Pioneer 10 and 11, Dynamics Explorer, Voyager 1 and 2, Galileo, Polar,
Cassini, and Mars Express.

Physics and Astronomy Courses

Prerequisites and corequisites are specified as guides and may be waived by the instructor. Courses 029:002
Nanoscience, 029:003 From Quarks to Quasars, 029:006 Physics of Everyday Experience, 029:008 Basic Physics,
Sound, 029:050 Stars, Galaxies, and the Universe, 029:051 Introductory Astronomy Laboratory, 029:052 Exploration
029:082 Introductory Physics II, and 029:084 Introductory Physics II Lab are approved for the natural sciences
component of College of Liberal Arts and Sciences General Education Program.

Physics, Primarily for Undergraduates

029:001 Selected Topics in Physics
029:002 Nanoscience
Properties of very small materials and structures; unique properties emerging at a length scale of one billionth of a
meter, or one nanometer. GE: Natural Sciences.

029:003 From Quarks to Quasars
Conceptual explanation of the latest discoveries in physics—from the smallest objects, such as quarks and atoms, to
the largest, such as galaxies, black holes, and quasars; for nonscience majors. GE: Natural Sciences.

029:006 Physics of Everyday Experience
Principles of physics for nonscience majors; basic motion, behavior of fluids, waves, temperature and heat, gravity and planetary motion, electricity and magnetism, optics, nuclear energy, radioactivity, and medical imaging technology; examples from everyday experience. GE: Natural Sciences.

029:008 Basic Physics 3-4 s.h.
Quantitative treatment of mechanics, electricity, heat, liquids, gases, and atomic, nuclear, and elementary particle physics. Prerequisite: 22M:005 or equivalent; closed to students who have taken 029:011 or 029:012. GE: Natural Sciences.

029:011 College Physics I 4 s.h.
Mechanics, waves, thermodynamics, special relativity. Prerequisite: 22M:005 or equivalent. GE: Natural Sciences.

029:012 College Physics II 4 s.h.

029:027 Physics I 4 s.h.
Newtonian mechanics for point particles and rigid bodies; conservation laws. Offered fall semesters. Prerequisite: physics or astronomy major. Corequisite: 22M:025. GE: Natural Sciences.

029:028 Physics II 4 s.h.
Continuation of 029:027; introduction to fluid mechanics, electricity, magnetism (Maxwell's equations). Offered spring semesters. Prerequisites: physics or astronomy major and 029:027. Corequisite: 22M:026. GE: Natural Sciences.

029:029 Physics III 4 s.h.
Continuation of 029:028; electromagnetic waves, optics; mechanical and sound waves; thermal physics. Offered fall semesters. Prerequisite: 029:028.

029:030 Physics IV 3-4 s.h.
Introduction to quantum mechanics and other topics in modern physics, including special relativity, atomic and solid state physics. Offered spring semesters. Prerequisites: 22M:026 and 029:029, or equivalents; 3 s.h. only for non-majors.

029:039 First-Year Seminar arr.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first-or second-semester standing.

029:044 Physics of Sound 3-4 s.h.
Acoustical foundations of music; production of sound by vibrating objects, properties of sound waves, vocal acoustics, hearing, room acoustics, principles of electroacoustics. GE: Natural Sciences.

029:081 Introductory Physics I 4 s.h.

029:082 Introductory Physics II 3-4 s.h.

029:084 Introductory Physics II Lab 1 s.h.
Laboratory for 029:082. Prerequisite: 3 s.h. in 029:082 or equivalent. GE: Natural Sciences.

029:093 Reading in Physics arr.
Selected topics in physics.

029:098 Undergraduate Seminar arr.
Selected topics in physics and astronomy; discussion, presentations.

029:099 Undergraduate Research arr.
Supervised research leading to written report or oral presentation. Prerequisite: consent of instructor.
## Physics for Undergraduate and Graduate Students

**029:103 Reading in Physics**  
Selected topics in physics.

**029:105 Special Topics in Physics**  
arr.

**029:115 Intermediate Mechanics**  
3 s.h.  
Newtonian mechanics; noninertial reference systems; central forces, celestial mechanics; rigid body motion; Lagrangian, Hamiltonian equations of motion; small oscillations. Prerequisites: 22M:026, and 029:011 or 029:027 or 029:081.

**029:118 Statistical Physics**  
3 s.h.  
Integrated introduction to subjects of thermodynamics, statistical mechanics, kinetic theory; emphasis on applications. Prerequisites: 029:030 or 029:083, and 029:115.

**029:128 Electronics**  
4 s.h.  
Design and construction of small circuits; use of measurement instruments—oscilloscope, multimeter, function generator; circuits, including transistors, operational amplifiers, digital, analog-to-digital conversion. Prerequisites: 029:012 or 029:028 or 029:082, and physics or astronomy major or consent of instructor.

**029:129 Electricity and Magnetism I**  
3 s.h.  
Electrostatics, magnetic fields, introduction to Maxwell's equations. Prerequisites: 22M:028, and 029:012 or 029:028 or 029:082.

**029:130 Electricity and Magnetism II**  
3 s.h.  
Continuation of 029:129; magnetism, electromagnetic waves, A.C. circuits, applications of Maxwell's equations to wave guides, antennas, optics, plasma physics, other topics. Prerequisite: 029:129.

**029:132 Intermediate Laboratory**  
3 s.h.  
Electricity; electronics; magnetism; optics; atomic, nuclear, solid state physics; techniques in data analysis, including error analysis. Prerequisites: 029:028 or 029:082, and 029:029 or 029:083. Corequisite: 029:129.

**029:133 Advanced Laboratory**  
3 s.h.  
Topics in electricity; electronics; magnetism; atomic, nuclear, plasma, solid state physics; techniques in data analysis, including error analysis.

**029:140 Introduction to Quantum Mechanics I**  
3 s.h.  
Superposition principle, Stern-Gerlach experiment, linear operators, measurement theory, time evolution, angular momentum, wave mechanics in one dimension, one-dimensional harmonic oscillator, two-body problems with central forces, the hydrogen atom. Prerequisites: 029:030 or 029:083, 029:115, 22M:027, and 22M:028.

**029:141 Introduction to Quantum Mechanics II**  
3 s.h.  
Perturbation theory, variational methods, WKB approximation, scattering, Helium atom, periodic table, atomic spectroscopy, transition rates, other selected applications. Prerequisite: 029:140.

**029:171 Mathematical Methods of Physics I**  
3 s.h.  
Functions of complex variables, integration methods, linear vector spaces, tensors, matrix algebra. Prerequisite: 22M:028.

**029:172 Mathematical Methods of Physics II**  
3 s.h.  
Continuation of 029:171; Hilbert space, special functions, Fourier transform and expansions in orthogonal polynomials, differential equations, Green's functions. Prerequisite: 029:171.

**029:180 Introductory Optics**  
3 s.h.  
Geometrical and physical optics; interference; diffraction; polarization; microscopic origins of macroscopic optical properties of matter; optical activity; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 029:130 or equivalent. Same as 055:177.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>029:182</td>
<td>Electro Optics</td>
<td>3 s.h.</td>
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<tr>
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<td>Wave equation solutions; optical birefringence;</td>
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<td>finite beam propagation in free space, dielectric</td>
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<td>waveguides and fibers; optical resonators;</td>
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<td>nonlinear phenomena; electro-optic, acousto-optic</td>
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<td>modulation; optical detection, noise; application</td>
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<td>to communication systems. Prerequisite: 055:070.</td>
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<td>Prerequisite: (for 029:182) 029:130 or equivalent.</td>
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<td>Same as 055:179.</td>
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<td>029:184</td>
<td>Optical Signal Processing</td>
<td>3 s.h.</td>
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<tr>
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<td>Linear systems description of optical propagation;</td>
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<td>diffraction and angular plane wave spectrum;</td>
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<td>lenses as Fourier transformers, lens configurations</td>
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<td>as generalized optical processors; lasers,</td>
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<td>coherence, spatial frequency analysis;</td>
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<td>holography; convolvers, correlators, matched</td>
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<td>filters; synthetic aperture radar; optical</td>
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<td>computing. Prerequisite: 055:070.</td>
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<td></td>
<td>Prerequisite: (for 029:184) 029:130 or equivalent.</td>
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<td>Same as 055:178.</td>
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<tr>
<td>029:192</td>
<td>Elementary Particles and Nuclear Physics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Accelerators, particle detectors, passage of</td>
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<td>radiation through matter; nuclear structure,</td>
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<td>nuclear reactions; quark model of hadrons;</td>
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<td>strong, electromagnetic, weak interactions of</td>
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<td>elementary particles; gauge theories,</td>
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<td>intermediate vector bosons; unification of</td>
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<td>electromagnetic and weak interactions. Prerequisite:</td>
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<td>029:140.</td>
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<tr>
<td>029:193</td>
<td>Introductory Solid State Physics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Phenomena associated with solid state;</td>
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<td></td>
<td>classification of solids and crystal structures,</td>
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<td>electronic and vibrational properties in solids;</td>
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<td>thermal, optical, magnetic, dielectric properties</td>
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<td>of solids. Prerequisites: 029:140 and 22M:028.</td>
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<td>Same as 055:173.</td>
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<tr>
<td>029:194</td>
<td>Plasma Physics I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Physics of ionized gases, including orbit theory,</td>
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<td>guiding center motion, adiabatic invariants,</td>
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<td>ionization balance description of plasmas by fluid</td>
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<td>variables and distribution functions; linearized</td>
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<td>wave motions, instabilities; magnetohydrodynamics.</td>
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<td>Prerequisite: 029:130.</td>
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<tr>
<td>029:195</td>
<td>Plasma Physics II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Continuation of 029:194; linear, nonlinear</td>
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<td></td>
<td>solutions of the Vlasov equation, kinetic theory</td>
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<td>of plasmas, including Landau damping and</td>
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<td>velocity space instabilities. Prerequisite:</td>
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<td>029:194.</td>
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<tr>
<td>029:196</td>
<td>Computational Physics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to contemporary use of computers</td>
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<td>by physicists; topics such as numerical solutions</td>
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<td></td>
<td>of ordinary differential equations in classical</td>
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<td></td>
<td>mechanics, boundary value problems in electricity</td>
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<td>and magnetism, eigenvalue problems in quantum</td>
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<td></td>
<td>mechanics, Monte Carlo simulations in statistical</td>
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<td></td>
<td>mechanics, methods of data analysis. Prerequisites:</td>
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**Physics, Primarily for Graduate Students**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>029:202</td>
<td>Workshops and Special Training in Physics</td>
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<tr>
<td></td>
<td>Workshops and special training opportunities for</td>
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<td></td>
<td>postbaccalaureate students; may include</td>
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<td></td>
<td>collaborations with other departments,</td>
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<td>institutions, or externally funded research</td>
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<td>organizations. Repeatable.</td>
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<tr>
<td>029:205</td>
<td>Classical Mechanics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Dynamics of mass points; Lagrange multipliers,</td>
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<td>small oscillations, Hamilton's equations;</td>
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<td>canonical transformations, Hamilton-Jacobi</td>
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<td></td>
<td>theory; chaos. Prerequisite: 029:115.</td>
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<tr>
<td>029:206</td>
<td>Nonlinear Dynamics</td>
<td>3 s.h.</td>
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<td>Deterministic approach of turbulence and chaotic</td>
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<td>dynamical systems; qualitative theory of</td>
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<td>ordinary differential equations, perturbation in</td>
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<td>classical mechanics, ergodicity, bifurcation,</td>
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<td>universal properties of discrete maps,</td>
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<td>intermittency, fractals, quantitative</td>
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<td>characterizations of chaos.</td>
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<td>029:211</td>
<td>Mechanics of Continua</td>
<td>3 s.h.</td>
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<td>Hydrostatics, dynamics of ideal fluids, both</td>
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<td>incompressible and compressible; viscous flow;</td>
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<td>classical theory of elasticity. Prerequisite:</td>
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<td>029:205.</td>
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<tr>
<td>029:212</td>
<td>Statistical Mechanics I</td>
<td>3 s.h.</td>
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</tbody>
</table>

Physics and Astronomy
Probability concepts; kinetic equations; classical and quantum equilibrium statistical mechanics with applications, including ideal and imperfect gases and phase transitions, irreversible processes, fluctuation-dissipation theorems. Prerequisites: 029:118 and 029:140.

029:213 Classical Electrodynamics I
Advanced electromagnetostatics, boundary value problems, Green's functions, Maxwell's equations, radiation theory, physical optics, multipole expansion of radiation field. Prerequisite: 029:130.

029:214 Classical Electrodynamics II
Special relativity, motion of charges in fields, theories of radiation reaction, special topics. Prerequisite: 029:213.

029:220 Individual Critical Study
Essay on topic chosen in consultation with faculty member. Prerequisite: candidacy for M.S. with critical essay.

029:222 Nonlinear Optics
Classical treatment of second- and third-order optical nonlinearities: phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: (for 029:222) 029:130 or equivalent. Prerequisite: (for 055:276) 029:130 or 055:170 or equivalent. Same as 055:276.

029:224 Laser Principles
Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: (for 029:224) 029:130 or equivalent. Prerequisite: (for 055:274) 055:170 or equivalent Same as 055:274.

029:225 Special Topics in Physics
Repeatable.

029:226 Quantum Electronics

029:228 Topics in Quantum Electronics
Quantum optics, optical properties of matter, laser science, photonics. Repeatable. Prerequisite: consent of instructor.

029:229 Semiconductor Physics

029:240 Medical Physics
Characteristics of X-ray machines, nuclear accelerators, teletherapy devices; properties of X-rays and gamma rays, their interaction with matter; radiation exposure, depth dose measurements; radiation therapy. Offered spring semesters of even years. Prerequisite: 8 s.h. of physics or consent of instructor. Same as 077:211.

029:245 Quantum Mechanics I
Nonrelativistic quantum mechanics, Schrödinger wave mechanics, Hilbert space methods, perturbation theory, scattering, spin and angular momentum, identical particles, selected applications, introduction to relativistic theory. Prerequisites: 029:140 and 029:141.

029:246 Quantum Mechanics II
Continuation of 029:245. Prerequisite: 029:245.

029:247 Introduction to Quantum Field Theory
Quantization of relativistic and nonrelativistic field theories, covariant perturbation theory, theory of renormalization, dimensional regularization, renormalization group theory, introduction to gauge theories and anomalies. Prerequisite: 029:246.

029:248 Quantum Gauge Theories

029:261 Seminar: Plasma Physics
Current research. Same as 055:291.

029:262 Seminar: Solid State Physics
Current research.

029:266 Seminar: Space Physics
Current research.

029:267 Seminar: Nuclear Physics
Current research.

029:268 Seminar: Elementary Particle Physics
Current research.

029:271 Theoretical Solid State Physics I
Central principles of the quantum theory of solids; lattice dynamics, electronic structure, optical properties, superconductivity, magnetism; emphasis on viewpoint of elementary excitations. Prerequisites: 029:193 and 029:246.

029:273 General Relativity and Cosmology
Einstein's theory of gravitation; applications to astrophysics and cosmology. Repeatable.

029:275 Particle Physics

029:276 Special Topics in Quantum Mechanics
Current topics in quantum mechanics, such as string theory, relativistic quantum mechanics, quantum gravity, axiomatic quantum field theory. Repeatable.

029:277 Special Topics in Condensed Matter
Current topics, such as superconductivity and magnetism. Repeatable. Prerequisite: 029:271.

029:278 Solar-Terrestrial Physics
Atmosphere of sun, radio and particle emissions therefrom; solar wind; origin and nature of geomagnetic field; upper atmosphere of Earth; magnetospheres of Earth and other planets; propagation of energetic particles in interplanetary medium and their access to Earth. Repeatable.

029:281 Research: Physics

029:294 Advanced Plasma Physics I
Microscopic plasma behavior: statistical mechanics of plasmas; Liouville equation; BBGKY hierarchy; Fokker-Planck equation and relaxation processes; Balescu-Lenard equation; Vlasov equation and linearized wave motion; shocks, nonlinear plasma motions, and instabilities; fluctuations and radiation processes; topics from recent literature. Repeatable. Prerequisite: consent of instructor.

Astronomy, Primarily for Undergraduates

029:050 Stars, Galaxies, and the Universe
Survey of stars, galaxies, and the universe; life cycles of stars, including black holes and pulsars; diversity of galaxies, including the Milky Way and distant quasars; cosmology--the history, structure, and fate of the universe; current results from recent astronomical observations; night sky observation. Prerequisite: closed to physics and astronomy majors. GE: Natural Sciences.
**029:051 Introductory Astronomy Laboratory**  
Laboratory for 029:050. Prerequisite: 3 s.h. in 029:050 or equivalent. GE: Natural Sciences.  

**029:052 Exploration of the Solar System**  
Survey of the solar system; physical properties of the planets, comets, and asteroids; origin of the solar system; search for extrasolar planetary systems; search for life in the universe; current results of recent planetary space missions; night sky observation. Prerequisite: closed to physics and astronomy majors. GE: Natural Sciences.  

**029:053 Life in the Universe**  
Are we alone? Scientific foundations of this question, technology behind searches for extraterrestrial life in the solar system and on extrasolar planets; evolution of life on Earth, likelihood that such conditions exist elsewhere in the universe; cultural consequences of discovering extraterrestrial life.  

**029:061 General Astronomy I**  
Qualitative and quantitative introduction to the development of astronomy, celestial mechanics, time, electromagnetic radiation, telescopes and astronomical instrumentation, planets, smaller solar system objects; laboratory emphasis on observation with telescopes. Prerequisite: four years of high school math or consent of instructor. GE: Natural Sciences.  

**029:062 General Astronomy II**  
Continuation of 029:061; qualitative and quantitative introduction to properties and evolution of sun, stars, interstellar matter, galaxies; cosmology; laboratory emphasis on observation with telescopes. Prerequisite: four years of high school math or consent of instructor. GE: Natural Sciences.  

**029:094 Reading in Astronomy**  
Selected topics in astronomy.  

**Astronomy for Undergraduate and Graduate Students**  

**029:104 Reading in Astronomy**  
arr.  

**029:106 Special Topics in Astronomy**  
arr.  

**029:119 Introduction to Astrophysics I**  
Fundamentals of astrophysical processes in solar system objects, stars, nebulae, interstellar medium, galaxies, cosmology; topics include stellar spectra, binary stars, interstellar gas and dust, stellar and galactic kinematics, stellar evolution, HII regions, radiation processes in galaxies and quasars, mathematical descriptions of the universe. Prerequisites: 22M:027, 22M:028, 029:030, 029:061, and 029:062. Recommended: computer programming experience.  

**029:120 Introduction to Astrophysics II**  
Continuation of 029:119. Prerequisite: 029:119.  

**029:137 Astronomical Laboratory**  
Techniques and instrumentation in optical and radio astronomy. Prerequisites: 029:030, 029:061, and 029:062; or consent of instructor.  

**029:186 Radio Astronomy**  
Survey of radio astronomy, emphasizing technical aspects; radiation, antennas, receivers, radio spectroscopy, interferometer arrays and aperture synthesis; emission mechanisms, pulsars, supernova remnants, radio galaxies.  

**Astronomy, Primarily for Graduate Students**  

**029:232 Theoretical Astrophysics I**  
Momentum and energy transport in stellar interiors, stellar structure and evolution, radiative transfer, theory of stellar photospheres and continuous spectra of stars, formation of absorption and emission lines.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>029:233</td>
<td>Theoretical Astrophysics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>The interstellar medium: optical properties of small interstellar grains, radiative processes in interstellar gas, structure of HII regions, interstellar shock waves, supernova remnants, modification of interstellar medium by luminous stars, molecular clouds.</td>
<td></td>
</tr>
<tr>
<td>029:234</td>
<td>Stellar Structure and Evolution</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Stellar interiors, nuclear astrophysics; advanced topics.</td>
<td></td>
</tr>
<tr>
<td>029:235</td>
<td>Special Topics in Astrophysics</td>
<td>1-3 s.h.</td>
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<tr>
<td></td>
<td>Advanced lectures. Repeatable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current research.</td>
<td></td>
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<tr>
<td>029:282</td>
<td>Research: Astronomy</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Original research in observational, theoretical astronomy.</td>
<td></td>
</tr>
</tbody>
</table>
Political Science

Chair: Tom W. Rice
Professors emeriti: Joel D. Barkan, Chong Lim Kim, Gerhard Loewenberg, Douglas K. Madsen, Russell M. Ross
Associate professors: Frederick J. Boehmke, Cary R. Covington, Douglas Dion, Timothy M. Hagle, Kelly M. Kadera, Brian H. Lai, Sara Mitchell, Cameron Thies
Assistant professors: Peter Hatemi, Christian Jensen, Kyle Mattes, Tracy Osborn, Rene Rocha, Thania Sanchez, Jae-Jae Spoon, Erica Townsend-Bell
Undergraduate degrees: B.A., B.S. in Political Science
Undergraduate nondegree program: Minor in Political Science
Graduate degrees: M.A., Ph.D. in Political Science
Web site: http://www.polisci.uiowa.edu

Undergraduate Programs

The department offers a Bachelor of Arts, a Bachelor of Science, and a minor in political science.

Bachelor of Arts

The Bachelor of Arts in political science requires a minimum of 120 s.h., including 33 s.h. of work for the major. Students must maintain a g.p.a. of at least 2.00 in all political science courses taken at The University of Iowa, and in all political science courses taken at other institutions and at the University combined. Students must complete the College of Liberal Arts and Sciences General Education Program.

Students must earn at least 12 s.h. of the 33 s.h. required for the major in political science courses at The University of Iowa. Credit earned in 030:029 First-Year Seminar and 030:191 Government Internship cannot be applied to the major, but grades in these courses become part of a student's grade-point average.

In planning course work, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may apply a maximum of 50 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

The B.A. major requires the following course work.

030:001 Introduction to American Politics 3 s.h.

Four of these:

030:020 Introduction to Politics 3 s.h.
030:030 Introduction to Political Thought and Political Action 3 s.h.
030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.
030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
030:042 Introduction to the Politics of Developing Areas 3 s.h.
030:043 Introduction to Politics in the Muslim World 3 s.h.
030:045 Introduction to Comparative Politics 3 s.h.
030:050 Introduction to Political Behavior 3 s.h.
030:060 Introduction to International Relations 3 s.h.
030:061 Introduction to American Foreign Policy 3 s.h.
030:070 Introduction to Political Communication 3 s.h.

Political science courses numbered 100 or above (at least 12 s.h. must be taken in regularly scheduled classroom work) 18 s.h.


For more detailed descriptions of the undergraduate programs in political science, see Guide to Undergraduate Study in Political Science, available in the department's office and on its web site.

Emphases in Political Science

Students may elect to complete one or more emphases while fulfilling the requirements for the B.A. or B.S. If a student completes an emphasis and requests recognition from the department, the emphasis is indicated on the transcript at
graduation.

Each emphasis consists of four courses. Emphases are available in American institutions, American political practice, international relations, law and politics, political communication, political economy, political processes, political theory, politics of democratization, politics of developing areas, and politics of industrial democracies. For lists of courses approved in each area, contact the Department of Political Science. For more information consult the Guide to Undergraduate Study in Political Science.

**Bachelor of Science**

The Bachelor of Science in political science requires a minimum of 120 s.h., including 44 s.h. of work for the major (33 s.h. in political science courses and 11 s.h. of approved mathematics/statistics courses). Students must maintain a g.p.a. of at least 2.00 in all political science courses taken at The University of Iowa, and in all political science courses taken at other institutions and at the University combined. Students must complete the College of Liberal Arts and Sciences General Education Program.

Students must earn at least 12 s.h. of the 33 s.h. political science courses required for the major at The University of Iowa. Credit earned in 030:029 First-Year Seminar and 030:191 Government Internship cannot be applied to the major, but grades in these courses become part of a student's grade-point average.

In planning course work, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may apply a maximum of 50 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

The B.S. major requires the following course work.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>030:001</td>
<td>Introduction to American Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:020</td>
<td>Introduction to Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:030</td>
<td>Introduction to Political Thought and Political Action</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:040</td>
<td>Introduction to the Politics of the Industrial Democracies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:041</td>
<td>Introduction to the Politics of Russia and Eurasia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:042</td>
<td>Introduction to the Politics of Developing Areas</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:043</td>
<td>Introduction to Politics in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:045</td>
<td>Introduction to Comparative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:050</td>
<td>Introduction to Political Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:060</td>
<td>Introduction to International Relations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:061</td>
<td>Introduction to American Foreign Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:070</td>
<td>Introduction to Political Communication</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Four of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>030:100</td>
<td>Understanding Political Research</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

All of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>030:100</td>
<td>Understanding Political Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Additional political science courses at the 100 level</td>
<td>12 s.h.</td>
<td></td>
</tr>
</tbody>
</table>

Recommended but not required:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>030:145</td>
<td>Honors Research Project (for honors students)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:193</td>
<td>Undergraduate Research Tutorial</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students must complete at least 12 s.h. of 100-level courses, including 030:100 Understanding Political Research, in regularly scheduled classroom work. The 12 s.h. may not include 030:185 Honors Research Project, 030:186 Honors Senior Thesis, 030:190 Independent Study, 030:191 Government Internship, 030:193 Undergraduate Research Tutorial, and 030:194 Senior Research Project/Paper.

One of the sets of three mathematics courses listed under "Approved Math/Statistics Courses" | 11 s.h. |
APPROVED MATH/STATISTICS COURSES

The following sets of mathematics/statistics courses are approved for the B.S. Other sets of courses may be used with written approval of the B.S. advisor.

Set 1:
- 22M:017 Calculus and Matrix Algebra for Business (22M:025 or 22M:031 can be substituted) 4 s.h.
- 22S:102 Introduction to Statistical Methods 3 s.h.
- 22S:148 Intermediate Statistical Methods 4 s.h.

Set 2:
- 06E:071 Statistics for Strategy Problems 3 s.h.
- 22M:017 Calculus and Matrix Algebra for Business 4 s.h.
- 22S:008 Statistics for Business 4 s.h.

Set 3:
- 22M:025 Calculus I (22M:031 can be substituted) 4 s.h.
- 22M:026 Calculus II (22M:032 can be substituted) 4 s.h.
- 22S:102/07P:143 Introduction to Statistical Methods 3 s.h.

For more detailed descriptions of the undergraduate programs in political science, see Guide to Undergraduate Study in Political Science, available in the department's office and on its web site.

Emphases in Political Science

Students may elect to complete one or more emphases while fulfilling the requirements for the B.A. or B.S. If a student completes an emphasis and requests recognition from the department, the emphasis is indicated on the transcript at graduation.

Each emphasis consists of four courses. Emphases are available in American institutions, American political practice, international relations, law and politics, political communication, political economy, political processes, political theory, politics of democratization, politics of developing areas, and politics of industrial democracies. For lists of courses approved in each area, contact the Department of Political Science. For more information consult the Guide to Undergraduate Study in Political Science.

B.A. or B.S. with Teacher Licensure

Undergraduates planning to emphasize political science in their teacher training should consult the College of Education for requirements.

The course 030:001 Introduction to American Politics fulfills the requirement for Iowa teacher licensure.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: eight courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education
courses, and a sufficient number of semester hours to graduate

**Bachelor of Science**

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** two courses in the major and at least one-half of the semester hours required for graduation

**Before the seventh semester:** eight courses in the major, including two of the three required mathematics/statistics courses and 030:100 Understanding Political Research, and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** 11 courses in the major, including 030:193 Undergraduate Research Tutorial

**During the eighth semester:** enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

**B.A. and B.S. with Honors**

In addition to the checkpoints for the B.A. and B.S. degrees, honors candidates must complete 030:180 Honors Seminar on the Study of Politics before the seventh semester begins.

**Honors**

The program leading to a B.A. or B.S. with honors is open to students with a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in political science. To graduate with honors, students must maintain a g.p.a. of at least 3.50 in political science and a cumulative UI g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). The program requires only 9 s.h. of 100-level honors course work with a grade of B or higher in each course, but students are encouraged to take 100-level honors seminars as often as possible. Students also are encouraged to take honors sections of introductory courses whenever available.

Honors students must complete 030:180 Honors Seminar on the Study of Politics, preferably as sophomores. They also must take at least one additional honors seminar (030:181 Honors Seminar on American Politics, 030:182 Honors Seminar on Political Theory, 030:183 Honors Seminar on Comparative Politics, or 030:184 Honors Seminar on International Politics). This requirement also may be met by taking a 300-level course, with the instructor's consent. The last 3 s.h. required for graduation with honors in political science may be earned by completing 030:185 Honors Research Project or 030:186 Honors Senior Thesis. For more information, see the Guide to Undergraduate Study in Political Science or contact the Department of Political Science honors advisor.

**Minor**

The minor in political science requires a minimum of 15 s.h. in political science courses, including 12 s.h. in 100-level courses and 12 s.h. taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Credit by exam is not accepted. Credit from 030:029 First-Year Seminar and 030:191 Government Internship does not count toward the minor. Credit earned through a University of Iowa Regents program is considered credit in residence.

Students may complete an area emphasis (see "Emphases in Political Science"); however, emphasis areas in the minor are not recorded on the transcript. Students may request a letter from the Department of Political Science noting the completion of an emphasis area in the minor.

**National Honor Society**

The department sponsors a chapter of Pi Sigma Alpha. Students who have a cumulative g.p.a. of at least 3.30, have attained junior standing, and have completed 15 s.h. of course work in political science are considered for membership. Contact the Department of Political Science honors advisor for more information.

**Graduate Programs**

The department offers a Master of Arts and a Doctor of Philosophy in political science. The Ph.D. program is designed for students planning academic careers. The department usually offers the master's degree only as a preliminary step toward the Ph.D.

**Master of Arts**

The Master of Arts in political science requires a minimum of 30 s.h. of graduate credit, with a g.p.a. of at least 3.25. No thesis is required. Each student's record is reviewed by a final examination committee, which may waive the final
oral examination. If the evaluation committee convened at the end of the student's first year of courses finds that a student's work provides sufficient evidence of the research and writing skills ordinarily demonstrated in a master's thesis, it may recommend that the student be allowed to proceed with a doctoral program.

When a first-year evaluation committee finds the quality of a student's work inadequate for recommending continuation toward the Ph.D., the committee may recommend that the student be permitted to seek the nontesis M.A. as a terminal degree.

**Doctor of Philosophy**

The Doctor of Philosophy in political science requires a minimum of 72 s.h. of graduate credit. The program is designed to prepare students for research, teaching, and scholarly endeavor in academic settings and private or governmental institutions. It produces graduates who are deeply committed to the study of politics, familiar with fundamental knowledge about political processes, well trained in methods and techniques for careful investigation of basic and applied research questions, and determined to make contributions to the discipline of political science and to society.

The department usually admits seven to ten Ph.D. students each year, so students work closely with faculty members, often collaborating on research and publication. Graduate students know one another and enjoy supportive, congenial working conditions.

Doctoral study usually lasts four to five years. The first-year curriculum for all students consists of core courses equally divided between substance and methodology. Emphasis is on basic research methods, including quantitative methods, that political scientists must understand thoroughly. Special attention is given to research design, collection of observations, and data analysis and interpretation.

The second and third years of study are spent in small seminars with focused, substantive topics. Papers written for these seminars might be submitted to journals or read at professional meetings. Students must take their qualifying examinations by the end of the third year. They take their comprehensive examination (oral defense of the dissertation proposal) by the middle of the first semester of their fourth year.

The fourth and fifth years are spent on dissertation research and writing. Students who do basic research and gather data abroad often require an additional year to complete the dissertation.

Six fields of study are available: American politics, comparative politics, international relations, political theory, formal theory, and for those who wish to go beyond the basic methodology training, research methods. Each student chooses three fields of study for qualifying examinations.

The Guide to Doctoral Study in Political Science, available from the Department of Political Science and on its web site, provides a comprehensive statement of departmental requirements.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Political Science Courses**

**For Undergraduates**

Courses numbered below 100 are introductory; those numbered 100 to 199 are advanced.

Courses 030:029 First-Year Seminar and 030:191 Government Internship cannot be applied toward the requirements for the major or minor in political science; 030:191 Government Internship is offered only satisfactory/fail.

**030:001 Introduction to American Politics**  
3 s.h.  
Structure and processes; political institutions including Congress, presidency, Supreme Court, parties, interest groups, bureaucracy; discussion of framing and significance of the U.S. Constitution. GE: Social Sciences.

**030:020 Introduction to Politics**  
3 s.h.  
Introduction to selected processes, institutions, or behaviors central to the study of politics.

**030:029 First-Year Seminar**  
1-2 s.h.  
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.
030:030 Introduction to Political Thought and Political Action 3 s.h.
Common problems, literature, analytic techniques. GE: Humanities, Social Sciences.

030:040 Introduction to the Politics of the Industrial Democracies 3 s.h.
Western European and/or Japanese systems of government compared; emphasis on similarities and differences between political parties, interest groups, legislative and executive institutions, policy-making processes, patterns of voting behavior and citizen participation.

030:041 Introduction to the Politics of Russia and Eurasia 3 s.h.
Russian politics; focus on problems of building new government institutions against backdrop of the communist legacy and the Soviet empire’s history; newly independent states, their struggles with political change. GE: Social Sciences.

030:042 Introduction to the Politics of Developing Areas 3 s.h.
Political systems of underdeveloped countries in Africa, Asia, Latin America; their development; how they interact with other developing countries and with developed countries. GE: Social Sciences.

030:043 Introduction to Politics in the Muslim World 3 s.h.
Regime types and the process of categorization in political science; political culture and historical legacies; link between political and economic development; ideologies; political participation (individuals, parties, interest groups); public policy and the policy process (domestic and foreign); selected countries including Iran, Iraq, Egypt, Indonesia, Afghanistan, and Uzbekistan. GE: Social Sciences.

030:045 Introduction to Comparative Politics 3 s.h.
Politics worldwide, including all regions and levels of development; wide-ranging themes, including democratization, sustainability, role of interest groups, authoritarian regimes, electoral systems, parties. Prerequisite: closed to students who have taken 030:040 or 030:042. GE: Social Sciences.

030:050 Introduction to Political Behavior 3 s.h.
Patterns and basis of political behavior; emphasis on common elements across social, organizational, institutional settings. GE: Social Sciences.

030:060 Introduction to International Relations 3 s.h.
Theoretical introduction to contemporary international relations; emphasis on security and military affairs, international political economy, politics of global environmental problems. GE: Social Sciences.

030:061 Introduction to American Foreign Policy 3 s.h.
Foreign policies: goals, basic themes and general patterns, problems encountered by policy makers, means employed in dealing with other nations and international organizations, processes by which policies are formulated, factors that influence structure of policies. GE: Social Sciences.

030:070 Introduction to Political Communication 3 s.h.
Institutions, dynamics, issues of political communities considered as networks of communication; representative topics include political actors, ads, films, media, myths, news, publics, regulations, rhetorics, symbols. GE: Social Sciences.

030:100 Understanding Political Research 3 s.h.
Focus on creating knowledgeable evaluators of current research in political science; interpretation of different quantitative techniques, with examples from current political science research.

030:106 Research in Judicial Politics 3 s.h.
Applied research training in courts and judicial politics. Prerequisite: 030:116 or 030:153 or 030:158.

030:107 Women and Politics in the United States 3 s.h.
Involvement of women in the U.S. political system; topics include political theories about women's involvement in politics and government, women and constitutional law, public policies that affect women, women's participation in politics at the mass and elite levels.

030:108 Latino Politics 3 s.h.
Overview of the political position of Latinos and Latinas in the United States; Mexican Americans, Cuban Americans, and Puerto Ricans; each group's history and part in the American polity; Latinos and electoral process, policy process, government; the demographic category Latino, group identity and solidarity; Latinos in Iowa, the Midwest, the South; policy matters, including education, immigration, environmental justice.

030:111 Local Politics 3 s.h.
Models of city government, relation to state and federal governments; rights, liabilities of municipalities; city elections, campaigns, issues; role of pressure groups.

030:112 Minority Representation in American Politics 3 s.h.
Effects of voting rights legislation, election laws, interest groups, and institutional constraints on minority representation in American politics.

030:113 American State Politics 3 s.h.
Approaches to analysis of political behavior in American state governments; emphasis on cultures, parties, actors, processes, issues.

030:114 African American Politics 3 s.h.
African American politics in the United States; political experiences of African Americans contrasted with ideals of democratic political systems; African American public opinion, political participation, voting behavior, representation; the influence of white racial attitudes.

030:115 The Presidency 3 s.h.
Development, current status of the office, powers, functions of American presidency; recruitment, multiple roles of chief executive; party, congressional, administrative, judicial relationships.

030:116 American Constitutional Law and Politics 3 s.h.
Role of U.S. Supreme Court in American political system; emphasis on analysis of Supreme Court cases.

030:117 Political Decision Making 3 s.h.
Political decision making processes, including executive, legislative, judicial, mass publics; decision theories from economics, psychology, political science, organizational behavior; normative and descriptive approaches to decisions made by political actors.

030:118 American Political Development 3 s.h.
Transformations in American political behavior and institutions over time.

030:119 Problems in American Politics 3 s.h.
Problems in studying American system; structures, functions, behavior.

030:120 Public Administration and Bureaucratic Politics 3 s.h.
Administrative and organizational theory and behavior; techniques of management; relations between administration and other branches in federal and state governments; administrative politics.

030:121 Public Choice 3 s.h.
Introduction to some of the most important topics in public choice (i.e., How do we explain what the public "wants"? Can we determine group preferences and group choices even if individual incentives run contrary to society's needs?); study of public choice theory problems in political science--how we determine society's preference among candidates, public policies, or even types of government.

030:122 Politics of Representation 3 s.h.
Theory and practice of representative government; theories of representative relationship, types of representative governments in the United States and abroad, the politics of representing constituents, minority representation in U.S. government.

030:124 Executive-Legislative Relations 3 s.h.
Conflict, cooperation between executive and legislative branches of U.S. government; budget politics, legislative veto, foreign policy.

030:125 Interest Groups 3 s.h.
Theory, organization, structure of interest groups; how they influence Congress, executive branch, courts, elections.

030:126 American Public Policy
Functions and policies of national government; emphasis on domestic policy making, impact of public policy. Prerequisite: 030:001.

030:127 Political Campaigning
Current state of political campaigning at all levels of government; history of campaigning, role of money and campaign finance reform, television and negative advertising, Internet campaigning.

030:128 Direct Legislation
Direct democracy—lawmaking by the citizenry without legislative action; origins, historical perspectives, usage across politics, regulations; consequences of direct democracy; concerns about equality of access, tyranny of majority; United States, other countries.

030:130 Consequences of War
War's enduring effects: war's impact on individuals, including combatants and noncombatants; war's impact on states, including states' development, economic, political, and social effects; war's effects on the international system.

030:132 Modern Political Theory
Major writers and intellectual trends in political thought from Renaissance and Reformation to 19th century.

030:133 Postmodern Political Theory
Major writers and intellectual trends, from 19th century to World War II.

030:134 Problems of Democracy
Theory and practice of democracy; democratic ideals and the institutions and practices necessary for those ideals to work in everyday politics—power, equality, majority rule, participation, trust, representation.

030:136 Strategy in Politics
How to isolate the most important elements in strategic political behavior, build models to understand them, recognize common scenarios, devise institutional resolutions to the Prisoners’ Dilemma and coordination problems.

030:137 Introduction to Political Economy
Economic reasoning applied to political issues, including evolution of institutions, voting, leadership, interest groups, bargaining tactics, federalism, bureaucracy, fairness and compensation for wrongs, legitimacy of democracy, electoral cycles in economic policy.

030:138 Current Political Theory
Thinkers or schools of thought, from World War II to present.

030:139 Political Issues
Representative topics include democracy, revolution, justice, obligation, technology, authority.

030:140 Government and Politics of Europe
Political institutions, processes of selected European countries. Prerequisite: 030:040. GE: Social Sciences.

030:141 Russian/Post-Soviet Politics
How the Soviet political system developed and functioned 1917-1985; transformations leading to 1991 break-up; emerging forms of government, politics in former Soviet republics. Prerequisite: 030:041 or consent of instructor. GE: Foreign Civilization & Culture.

030:142 European Integration
Politics of the European Union; institutional characteristics and major political issues of the European Union, including popular and national responses to European integration.

030:143 Government and Politics of the Far East
Functions, institutions of government in countries of Far East; focus on social, economic, historical environments. GE: Foreign Civilization & Culture. Same as 039:178.
030:144 Latin American Politics
Governmental institutions, major interest groups; focus on area as a whole. GE: Foreign Civilization & Culture.

030:145 Latin American Political Parties
Challenges posed by recent democratization in Latin America; issues of representation and governance across Latin America's party systems; broad theoretical concepts linked to processes under way in the region.

030:146 Russian Foreign Policy
External postures, policies and behaviors, what lies behind them; Russian perceptions of the world and national interest; internal political dynamics; military, economic, diplomatic capability; rival views of Russian foreign policy.

030:147 Comparative Parties and Elections
Political parties and elections from a comparative perspective; parties in developed democracies; parties as organizations, in the electorate, in government; party formation and development, party identification and voter behavior, party competition, electoral systems. Prerequisite: 030:040.

030:148 Government and Politics of China
Political development of China; rise to power of Mao's communist party, attempts to transform Chinese society; the Cultural Revolution; tensions and achievements of the reform era; whether partnership or conflict will define the China-U.S. relationship in the coming decades.

030:149 Problems in Comparative Politics
Structures, functions, behaviors of different political systems.

030:150 Comparative Administrative Politics
Institutional practices and issues surrounding policy implementation in democracies; comparative examination of the administrative politics of advanced democracies.

030:151 Political Leadership
Foundations, effects of leadership in different political systems.

030:152 The Legislative Process
Comparative legislative processes, behavior; focus on legislative systems analysis, legislative institutionalization, legislature and its environment, organizational constraints on legislative behavior, recruitment of legislators, web of legislative interactions, legislative voting behavior.

030:153 The Judicial Process
Role of courts, lawyers, judges, interest groups in the American political system.

030:154 Political Psychology
Political phenomena from psychological perspective; political behaviors of individuals, including decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological concepts including stereotyping, social cognition, attitude, group identification.

030:155 International Courts: The Intersection of Law and Politics
Introduction to important international courts including (Permanent) International Court of Justice, European Court of Justice, International Criminal Tribunal for Yugoslavia, International Criminal Tribunal for Rwanda, and International Criminal Court; the formation, design, and expansion of international courts from political and legal perspectives; states’ capabilities, regime type, and war; intersection of domestic and international law, emphasizing the major legal systems in the world (civil law, common law, Islamic law).

030:156 Ethnic and Religious Conflict in the Muslim World
Ethnic and religious conflict in the Muslim world; language rights, cultural preservation, and religious nationalism examined through case studies of ethnic and religious groups in countries such as Afghanistan and Iraq; conditions under which conflict becomes violent, protracted, and regionalized; strategies available to states and minority groups for resolving or managing conflicts.

030:157 Voting Behavior and Elections
Determinants of voting behavior; correlates of political participation, political apathy; political socialization processes; nature and functions of elections.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>030:158</td>
<td>The Criminal Justice System</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Role of actors, institutions that constitute and participate in the American</td>
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<td></td>
<td>criminal justice system.</td>
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<tr>
<td>030:159</td>
<td>Politics Under Authoritarian Rule</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Political dynamics in countries with authoritarian governing regimes; how</td>
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<td></td>
<td>those dynamics differ from their counterparts in democracies; how decisions</td>
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<td></td>
<td>are reached and get enforced; forms political struggles take; how interest</td>
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<td>groups pursue influence; ways individuals deal with the government; tension</td>
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<td>between regime control and societal progress.</td>
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<tr>
<td>030:160</td>
<td>Women and Politics in Global Perspective</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Women and politics in Europe and the global South; women's participation in</td>
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<td></td>
<td>political parties and social movements, women in the bureaucracy, women</td>
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<td></td>
<td>and the politics of intersectionality, feminism and the state, emergence of</td>
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<td>female gender identities.</td>
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<tr>
<td>030:161</td>
<td>International Organization and World Order</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>How and why states have developed regularized patterns of interaction in the</td>
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<td>spheres of economics and security through international organizations and</td>
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<td></td>
<td>international regimes; regional integration processes, multilateralism.</td>
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<tr>
<td>030:162</td>
<td>American Foreign Policies</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Ends pursued, problems encountered, means employed by the United States in</td>
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<td></td>
<td>relations with other states and international organizations. Prerequisite:</td>
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<td></td>
<td>030:061 or consent of instructor.</td>
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<tr>
<td>030:163</td>
<td>Chinese Foreign Policy</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Foreign policy of the People's Republic of China from its founding in 1949</td>
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<td></td>
<td>to present; important events (China's entry into the Korean War, Sino-Soviet</td>
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<td>split in the 1960s, rapprochement between China and the United States in the</td>
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<td>1970s, tensions with Taiwan in the 1990s, China's entry into the World Trade</td>
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<td></td>
<td>Organization); competing explanations for these turning points, theoretical</td>
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<td></td>
<td>approaches to the study of international relations.</td>
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<tr>
<td>030:164</td>
<td>Race in World Politics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Fundamental questions about racial and ethnic politics; racial and ethnic</td>
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<td>identities and their intersection with other major social cleavages such as</td>
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<td>class, nationality, sexuality, religion, gender; concepts and use of race</td>
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<td></td>
<td>and ethnicity viewed through varied theoretical perspectives; contemporary</td>
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<td>events around the globe.</td>
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<td>030:165</td>
<td>International Conflict</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>International conflict as the primary ingredient of international politics;</td>
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<td></td>
<td>sources, causes, and effects of conflict, alliance structures, power</td>
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<td>distribution, geography, arms races, deterrence.</td>
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<tr>
<td>030:166</td>
<td>Global Political Communication</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>How television and the Internet are creating a global culture within which</td>
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<td>political leaders and nations interact.</td>
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<tr>
<td>030:167</td>
<td>Politics and the Multinational Enterprise</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Political factors affecting a firm's decision to go multinational; effects</td>
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<td>on home and host countries; political risk management; bargaining between</td>
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<td>states and corporations; regulation of multinationals by nation-states and</td>
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<td>international organizations; political implications of global mergers.</td>
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<tr>
<td>030:168</td>
<td>Politics of Terrorism</td>
<td>3 s.h.</td>
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<td></td>
<td>Political motivations of terrorists; responses to terrorism, politics of</td>
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<td>prevention and preparation for terrorism; contemporary terrorist organizations,</td>
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<td>international responses to them.</td>
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<tr>
<td>030:169</td>
<td>Problems of International Politics</td>
<td>3 s.h.</td>
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<td></td>
<td>Problems in studying international system, structures, functions, behavior.</td>
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<td>030:170</td>
<td>The Politics of International Economics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Political, historical dimensions; political aspects of trade, monetary</td>
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<td>systems, foreign investment, aid, dependency, global interdependence.</td>
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<td>030:171</td>
<td>Public Opinion</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Role in making public policy; formation, change of political attitudes and</td>
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<td>opinions; political ideology; measurement of public opinion; how opinion</td>
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<td></td>
<td>polls are conducted; experience with interviewing and conducting public</td>
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<td>opinion research. Prerequisite: 034:001 or consent of instructor for sociology</td>
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<tr>
<td></td>
<td>majors. Same as 034:153.</td>
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</tbody>
</table>
030:172 France in the 21st Century 3 s.h.
French politics from the end of the 20th century to beginning of the 21st century; history of France’s Fifth Republic; institutional development; key events that influenced politics in France over the last 50 years; major issues that shape France today—citizenship, immigration, identity, France’s role in the European Union, electoral and institutional reform, rise of the extreme right, role of women in French society, how protest still affects French politics.

030:173 State Failure in the Developing World 3 s.h.
Examine state failure in the developing world, including notable cases like Somalia and Zimbabwe; causes of state failure; potential policy interventions designed to address the consequences of state failure.

030:174 Multimedia Politics 3 s.h.
American politics and communication via multimedia domains; television, World Wide Web.

030:175 Politics of Film 3 s.h.
Issues in the popular politics of aesthetics, communication, culture, and myth, explored through analysis of films.

030:176 Governance in the Middle East 3 s.h.
Institutions and social systems that are affected by political behavior; ways in which Islam, oil production, and international forces shape political evolution in the region; comparative political inquiry of the operation of government institutions in the context of specific historical legacies, economic structures, and population characteristics in Iran, Iraq, Egypt, Turkey, Saudi Arabia.

030:177 Globalization 3 s.h.
Introduction to multidisciplinary literature on political economy and culture of globalization; major topics of debate on globalization.

030:178 Causes, Consequences, and Management of Civil War 3 s.h.
Causes, duration, management, and consequences of civil war; factors that create more frequent, longer civil wars (e.g., greed, grievance, ethnic conflict, state capacity); conflict management strategies for ending civil wars and minimizing long-term negative consequences.

030:179 Human Rights and Asian Values 3 s.h.
Challenges to the Universal Declaration of Human Rights and human rights theory by thinkers and politicians outside Western liberalism; crucial aspects of politics in Asia and the meaning of human rights, explored through debates between Asian skeptics and defenders of human rights.

030:180 Honors Seminar on the Study of Politics 3 s.h.
History, scope, methods; diverse issues, theories, techniques in systematic study. Prerequisite: honors standing in political science or consent of instructor.

030:181 Honors Seminar on American Politics 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:182 Honors Seminar on Political Theory 3 s.h.
Intensive study of ideas, issues, methods in an area of political theory. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:183 Honors Seminar on Comparative Politics 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:184 Honors Seminar on International Politics 3 s.h.
Ideas, issues, methods in selected area. Prerequisite: junior or senior honors standing in political science or consent of instructor.

030:185 Honors Research Project 3 s.h.
Special research assistance to political science faculty. Prerequisite: junior or senior honors standing in political science and consent of instructor.
030:186 Honors Senior Thesis
Supervised research and writing. Prerequisites: honors standing in political science, more than one semester before graduation, and consent of instructor.

030:190 Independent Study
Supervised special projects. Prerequisite: consent of instructor.

030:191 Government Internship
Undergraduate internships in state or national legislative office, executive agency, or with election campaign official. Prerequisite: consent of instructor.

030:193 Undergraduate Research Tutorial
Individual training in applied research. Prerequisite: consent of supervising faculty member.

030:194 Senior Research Project/Paper
Supervised research and writing. Prerequisites: major in political science, more than one semester before graduation, and consent of instructor.

For Graduate Students
Courses numbered 200 to 299 are core courses; those numbered 300 and above are advanced.

030:200 Introduction to Political Analysis
Conceptual problems of political analysis; empirical research strategies, philosophy of science. Prerequisite: doctoral standing in political science or consent of instructor.

030:201 Introductory Methodology
Introduction to quantitative techniques in political science; set theory, probability distributions, estimation, testing; emphasis on acquiring mathematical skills for more advanced quantitative work in political science. Prerequisite: doctoral standing in political science or consent of instructor.

030:205 Introduction to Formal Models in Political Science
Use of formal mathematical models; current modeling techniques, applications in American politics, comparative politics, international politics. Prerequisite: doctoral standing in political science or consent of instructor.

030:210 American Politics
Major literature of American politics, emphasis on comparative, systemic, behavioral studies. Prerequisite: doctoral standing in political science or consent of instructor.

030:230 Political Theory
Methods of political theory, epistemological and moral foundations of political inquiry; terms of political discourse (e.g., power, legitimacy, equality, ideological foundations of politics); schools of thought and current controversies in political theory. Prerequisite: doctoral standing in political science or consent of instructor.

030:240 Comparative Politics
Current approaches, analysis of systems; emphasis on conceptual, methodological issues. Prerequisite: doctoral standing in political science or consent of instructor.

030:242 Crossing Borders Seminar

030:243 Crossing Borders Proseminar

030:260 International Politics
Approaches to study of international politics. Prerequisite: doctoral standing in political science or consent of instructor.
030:301 Intermediate Methodology
Techniques of data analysis; statistical models and their relationship to hypotheses tested. Prerequisites: doctoral standing in political science and one semester of intermediate statistics.

030:302 Writing Political Science
Practice in planning and completing political inquiries, with emphasis on writing for scholarly publication; experience refining one's prior research projects for submission to disciplinary journals, and drafting dissertation proposals. Prerequisite: doctoral standing in political science or consent of instructor.

030:303 Advanced Methodology
Introduction to regression techniques for limited dependent and qualitative variables in political science; logit, probit, multinomial logit and probit, ordered logit and probit, event history models, event count models; emphasis on understanding how and when to apply these models.

030:304 Experimental Methods
Methods, techniques used in political science experiments.

030:306 Topics in Methodology
Application of advanced statistical techniques in political science; limited dependent variable regression techniques, simulation methods, missing data techniques, history/rare event analysis and maximum likelihood, and topics tailored to students' research; focus on learning how and when to apply these techniques. Repeatable.

030:307 Qualitative Methods
Introduction to qualitative methods in political science research; interviewing, ethnographic research, process tracing, comparative historical analysis, content and discourse analysis, fuzzy set theory.

030:310 Modeling American Politics
Exploration of how well formal models explain the real world and how the fit between models and world can be improved.

030:315 The Presidency
American chief executive: history, recruitment, behavior, roles, responsibilities, powers, relationships with other institutions.

030:319 Problems in American Politics
Problems in study of American political system; structures, functions, behavior. Repeatable.

030:339 Problems in Political Theory
Prescriptive and explanatory political theory. Repeatable.

030:340 Politics of Europe
Selected systems or common political phenomena.

030:341 Democracy and Democratization
Competing conceptions of democratic governance and competing theoretical frameworks for the study of successful or attempted regime change from authoritarian rule toward democracy; emphasis on reading and critically analyzing diverse approaches.

030:342 Religion, Ethnicity, and Politics
Theories and empirical work on the relationships between religions and politics; issues of law and political behavior, development of theoretical models in study of ethnicity and nationalism; religious and national identities in modern society, opportunity structures and resource mobilization in context of religious and national movements.

030:343 Asian Political Systems
Democratic, transitional, and totalitarian types of government; emphasis on leadership recruitment, social control, political participation.

030:344 European Union
Politics of the European Union; institutional characteristics and major political issues of the European Union, including popular and national responses to European integration.

030:345 The State 4 s.h.
Apparatus of government; major theoretical and empirical work of the state, drawn from comparative politics; state building, bureaucracy, "developmental" and "predatory" states, state-society relationships, failed states.

030:347 Associations, Networks and Trust, Politics 4 s.h.
Role of associational life in politics; role of citizens' organizations in enhancing quality of democratic governance or changing authoritarian systems; usefulness of concepts such as civil society and social capital, how such concepts work in varied cultural and institutional contexts; how nongovernmental and nonprofit organizations reshape domestic and international politics; main currents and contributions, avenues for future research.

030:349 Problems of Comparative Politics 4 s.h.
Problems in study of comparative political systems; structures, functions, behavior. Repeatable.

030:352 Legislative Behavior 4 s.h.
Institutions, processes, behavior in the United States, Europe, or developing countries. Repeatable.

030:353 Political Psychology 4 s.h.
Political phenomena from a psychological perspective; decision making by elites and masses, evaluations of political candidates, mass mobilization, response to mass media; psychological theories used to explain these behaviors, including stereotyping, social cognition, attitude, group identification, attribution.

030:357 Public Opinion and Electoral Behavior 4 s.h.
Political attitudes and beliefs in mass publics; voting behavior; how electoral systems function.

030:361 Foreign Policy 4 s.h.
Foreign policy making and international behavior in relation to theories, findings from selected countries.

030:362 International Conflict and Cooperation 4 s.h.
Recent theoretical and empirical debates in international relations literature; emphasis on formal and quantitative research.

030:363 Dynamic Models of International Politics 4 s.h.
Overview of several dynamic modeling techniques used to study international relations; modeling assumptions, the kinds of information models can provide, evaluation of models.

030:367 Theories of International Political Economy 4 s.h.
Theories focusing on international system, the state, bureaucracies, interest groups, international organizations, bargaining processes, distributive norms.

030:368 International Systems and Global Governance 4 s.h.
Literature of international systems and international organization; major schools of thought in international relations theory, their utility in explaining evolution of the international system and recent developments in international organization and global governance.

030:369 Problems in International Politics 4 s.h.
Issues of international politics, emphasis on problems of theoretical analysis. Repeatable.

030:390 Readings Tutorial arr.
Independent study. Repeatable. Prerequisite: consent of supervising faculty member.

030:393 Research Tutorial arr.
Individual training in applied research. Repeatable. Prerequisite: consent of supervising faculty member.

Repeatable. Prerequisite: consent of supervising faculty member.
Undergraduate Programs

The department offers a Bachelor of Arts, a Bachelor of Science, and a minor in psychology. Both bachelor's degree programs are designed to contribute to students' general liberal arts education and to provide a foundation for postbaccalaureate training in psychology and closely related disciplines, and in areas such as business, medicine, law, and communications. Students who intend to enter the job market immediately after completing an undergraduate degree are well-advised to complement their psychology major with substantial preparation in another program more closely tied to the world of work (e.g., education, social work, business, journalism, nursing). Almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is intended for students who plan to pursue advanced work in psychology or in a related discipline. It includes an admission grade-point average requirement and specific courses in statistics, experimental psychology, mathematics, and natural science. The B.A. program has fewer specific requirements and puts less emphasis on methodology. Both programs leave ample time for students to combine psychology with another discipline or program.

Students who change of psychology major after two years of undergraduate work may find they do not have sufficient background for the B.S. program. They may wish to enrich the B.A. program with courses in experimental psychology and other advanced electives if they intend to pursue graduate work in psychology or a related field.

Students in either program begin with a general introductory course, followed by statistics and methodology courses and introductory courses in several broad areas: behavioral and cognitive neuroscience, developmental science, clinical psychology, cognition and perception, and personality and social psychology. These courses are followed by upper-level psychology course work selected by the student.

The department maintains excellent facilities to support teaching and research on human and animal behavior. All faculty members are directly engaged in research, and they bring to their undergraduate teaching the excitement that such activity generates. Many opportunities exist for interested and capable students to participate in current research projects in the department.

The department has an active undergraduate organization, the Iowa Students Psychology Association, which is open to all interested students. The group sponsors speakers, films, career days, and student symposia.

Selective Admission

Admission to the B.A. program in psychology is open; admission to the B.S. program is selective.

To be eligible for admission to the B.S. program, students must have completed 30 s.h. of college course work (excluding any credit by exam) and must have a cumulative g.p.a. of 2.67 or higher. There is no limit on the number of qualified students admitted to the B.S. program. Students who do not meet the minimum admission requirements may petition the department in writing, presenting additional evidence of their qualifications.

Any University student may enter the B.A. program. Entering first-year and transfer students with fewer than 30 s.h. of course work who are interested in the B.S. program are admitted to the B.A. program until they satisfy the admission requirements for the B.S. program. New transfer students who meet the admission requirements for the B.S. program may choose to enter the B.S. or the B.A. program. Any student in the B.A. program may switch to the B.S. program if he or she meets admission requirements at the time of the request. Students may switch from the B.S. to the B.A. program at any time.

Bachelor of Arts
Requirements for the major in psychology have changed. Students who entered the college after summer 2008 or who declared or entered the major on or after the first day of fall semester 2008 must fulfill the new requirements, below. Students who declared or entered the major before the first day of fall semester 2008 may choose to complete the old requirements (see previous editions of the Catalog), but they must complete all requirements and graduate by August 2012.

The Bachelor of Arts in psychology requires a minimum of 120 s.h., including 44-45 s.h. of work for the major, with a minimum of 29 s.h. in psychology courses. The B.A. is designed for students who wish to gain considerable knowledge in psychology but do not necessarily plan a professional career in the discipline. It is appropriate for students preparing for careers in law, business, counseling, social work, or secondary school teaching; see Teaching and Learning (College of Education) in the Catalog for social science teaching certification requirements. The B.A. program requires fewer psychology courses than the B.S. program and can more easily be combined with a second major.

The 44-45 s.h. required for the B.A. in psychology includes a minimum of 29 s.h. in psychology courses, an approved statistics course (3 s.h.), a cognate requirement (3-4 s.h.), and at least 9 s.h. of University of Iowa course work in a second concentration area (see "Second Concentration Area" below). Transfer students must complete at least 15 s.h. of the major at The University of Iowa. Students must complete the College of Liberal Arts and Sciences General Education Program and must satisfy all other requirements for graduation with a bachelor's degree.

Students interested in pursuing graduate study in psychology or other social sciences may wish to enrich their B.A. program by taking courses in mathematics, statistics, research methods, and the natural sciences.

The B.A. program must include the following courses or their equivalents. (Before registering each semester or summer session, students should consult Undergraduate Psychology at Iowa for changes in department requirements.)

**PSYCHOLOGY CORE REQUIREMENTS**

**Statistics**

One of these (3-4 s.h.):

- 22S:008 Statistics for Business 4 s.h.
- 22S:025/07P:025 Elementary Statistics and Inference 3 s.h.
- 22S:101 Biostatistics (recommended for B.S. students) 3 s.h.
- 22S:102/07P:143 Introduction to Statistical Methods (recommended for B.S. students) 3 s.h.

**Psychology**

All of these:

- 031:001 Elementary Psychology 3 s.h.
- 031:002 Biological Psychology 4 s.h.
- 031:010 Research Methods in Psychology 4 s.h.

**LOWER-LEVEL ELECTIVES**

Students take three of these (9 s.h.) after completing 031:001 Elementary Psychology and 031:002 Biological Psychology.

- 031:013 Introduction to Clinical Psychology 3 s.h.
- 031:014 Introduction to Developmental Science 3 s.h.
- 031:015 Introduction to Social Psychology 3 s.h.
- 031:016 Introduction to Cognitive Psychology 3 s.h.

**UPPER-LEVEL ELECTIVES**

Students take three upper-level courses after satisfactorily completing the psychology core courses and other specified prerequisites (total of 9 s.h.). Prerequisites are stated in course descriptions; see "Courses" later in this section.

For a list of approved upper-level courses and their prerequisites, see Undergraduate Psychology at Iowa, available from the department and on its web site. Check Iowa Student Information System (ISIS) to learn which courses are
offered in a particular semester.

COGNATE REQUIREMENT

Students complete an upper-level statistics course or a computer science course. Students who fulfill the statistics requirement (above) with 22S:101 Biostatistics or 22S:102 Introduction to Statistical Methods must use a different course to fulfill the cognate requirement.

Statistics

- 06E:071 Statistics for Strategy Problems 3 s.h.
- 22S:101 Biostatistics 3 s.h.
- 22S:102 Introduction to Statistical Methods 3 s.h.
- 22S:120 Probability and Statistics 4 s.h.
- 22S:148 Intermediate Statistical Methods 4 s.h.

Computer Science

- 22C:005 Introduction to Computer Science 3 s.h.
- 22C:016 Computer Science I: Fundamentals 4 s.h.
- 22C:080 Programming for Informatics 4 s.h.

SECOND CONCENTRATION AREA

Students complete 9 s.h. of course work in a single department other than psychology. Courses used to fulfill this requirement must be taken at The University of Iowa and may not be used to fulfill General Education Program requirements. A second major or a minor in any discipline other than psychology can be used to fulfill the requirement.

Bachelor of Science

Requirements for the major in psychology have changed. Students who entered the college after summer 2008 or who declared or entered the major on or after the first day of fall semester 2008 must fulfill the new requirements, below. Students who declared or entered the major before the first day of fall semester 2008 may choose to complete the old requirements (see previous editions of the Catalog), but they must complete all requirements and graduate by August 2012.

The Bachelor of Science in psychology requires a minimum of 120 s.h., including 53-54 s.h. of work for the major, with a minimum of 36 s.h. in psychology courses. The B.S. emphasizes research methodology, so it may be the degree of choice for students who plan to do graduate work in psychology and related research fields. However, a B.S. is not required for graduate study in psychology. Choice of a degree program should be dictated by the student's personal career goals.

The 53-54 s.h. required for the B.S. in psychology includes a minimum of 36 s.h. in psychology courses, an approved statistics course (3 s.h.), an approved pair of natural science courses, one semester of calculus, and an approved advanced course in mathematics, statistics, or computer science. Transfer students must complete at least 15 s.h. of the major at The University of Iowa. Students must complete the College of Liberal Arts and Sciences General Education Program and must satisfy all other requirements for graduation with a bachelor's degree.

The B.S. program must include the following courses or their equivalents. (Before registering each semester or summer session, students should consult Undergraduate Psychology at Iowa for changes in department requirements.)

PSYCHOLOGY CORE REQUIREMENTS

Statistics

One of these (3-4 s.h.):

- 22S:008 Statistics for Business 4 s.h.
- 22S:025/07P:025 Elementary Statistics and Inference 3 s.h.
- 22S:101 Biostatistics (recommended) 3 s.h.
- 22S:102/07P:143 Introduction to Statistical Methods (recommended) 3 s.h.
All of these:

031:001 Elementary Psychology 3 s.h.
031:002 Biological Psychology 4 s.h.
031:010 Research Methods in Psychology 4 s.h.

LOWER-LEVEL ELECTIVES

Students take three of these (9 s.h.) after completing 031:001 Elementary Psychology and 031:002 Biological Psychology.

031:013 Introduction to Clinical Psychology 3 s.h.
031:014 Introduction to Developmental Science 3 s.h.
031:015 Introduction to Social Psychology 3 s.h.
031:016 Introduction to Cognitive Psychology 3 s.h.

UPPER-LEVEL ELECTIVES

Students take three upper-level courses after satisfactorily completing the psychology core courses and other specified prerequisites (total of 9 s.h.). Prerequisites are stated in course descriptions; see "Courses" later in this section of the Catalog.

For a list of approved upper-level courses and their prerequisites, see Undergraduate Psychology at Iowa, available from the department and on its web site. Check Iowa Student Information System (ISIS) to learn which courses are offered in a particular semester.

SELECTED TOPICS COURSES

Students take both of these.

031:121 Laboratory in Psychology 4 s.h.
031:190 Psychology Seminar 3 s.h.

ADDITIONAL REQUIRED COURSES

Students in the B.S. program also are required to complete one of the following pairs of specified natural science courses: one semester each of chemistry and biology; two semesters of chemistry; two semesters of physics; or one semester each of chemistry and physics. All of these combinations can be used to fulfill the General Education Program natural sciences requirement. B.S. majors also must complete at least one semester of calculus; in most cases this entails at least one precalculus mathematics course. Students should consult with their advisors concerning specific courses that satisfy these requirements.

Students also must complete at least one additional course in advanced mathematics, statistics, or computer science chosen from the following lists.

Mathematics

22M:026 Calculus II 4 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.

Statistics

06E:071 Statistics for Strategy Problems 3 s.h.
22S:120 Probability and Statistics 4 s.h.
22S:148 Intermediate Statistical Methods 4 s.h.
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Arts

In addition to courses in the major, the B.A. requires three courses in a second area.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 031:001 Elementary Psychology, 031:002 Biological Psychology, statistics, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four courses in the major (including 031:010 Research Methods in Psychology), one second-area course, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two additional courses in the major and an additional second-area course

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Science

Note: The B.S. is open only to students who have earned 30 s.h. in course work and have a g.p.a. of at least 2.67. Students must complete a natural science sequence, either as part of the General Education Program or in addition to it. Students also must complete a semester of calculus and an advanced math, statistics, or computer course, which may require some preliminary work.

Before the third semester begins: 031:001 Elementary Psychology, 031:002 Biological Psychology, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: calculus, statistics, three additional courses in the major (including 031:010 Research Methods in Psychology), and at least one-half of the semester hours required for graduation

Before the seventh semester begins: two more courses in the major, one course for the psychology natural science requirement, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the advanced math/statistics/computer course and two more courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

In order to pursue honors studies in the Department of Psychology, a student must be a member of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

The department has an active honors program that includes research seminars and individual research collaboration with faculty members. Interested majors should contact the department honors advisor.

Minor

The minor in psychology requires a minimum of 15 s.h., including 12 s.h. in psychology courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass or satisfactory/fail. Before registering for a psychology course, students must satisfy the course's prerequisites.
A minor in psychology complements majors in a variety of disciplines. Department advisors can help students identify courses for the minor that are especially appropriate for their major.

**National Honor Society**

The department sponsors a chapter of Psi Chi, the national honor society in psychology and affiliate of the American Psychological Association. Students who have a g.p.a. of at least 3.00 overall and 3.10 in psychology course work and who have completed 9 s.h. of psychology may request a membership application form. Consult the department's academic coordinator for more information.

**Graduate Programs**

The department offers a Master of Arts, with and without thesis, and a Doctor of Philosophy in psychology. Graduate study in psychology is designed for students seeking the Ph.D.; students enrolled in the doctoral program may elect to receive a Master of Arts when they have completed the M.A. requirements.

**Master of Arts**

The Master of Arts in psychology requires 30 s.h. of graduate credit with thesis, and 37 s.h. of graduate credit without thesis. The department ordinarily offers the M.A. only to students enrolled in the Ph.D. program.

Thesis students must earn 24 of the required 30 s.h. at The University of Iowa. Course work for the thesis program must include a statistics course, courses outside the primary specialization area, and at least an additional 8 s.h. earned in Department of Psychology courses and seminars. Thesis students also must complete an acceptable scholarly thesis and conduct a successful oral defense of the thesis.

Nonthesis students must earn 30 of the required 37 s.h. at The University of Iowa. Course work for the nonthesis program must include a statistics course, courses outside the primary specialization area, and at least an additional 15 s.h. earned in Department of Psychology courses and seminars. Nonthesis students also must perform successfully on an examination covering their area of specialization.

**Doctor of Philosophy**

The Doctor of Philosophy in psychology requires a minimum of 72 s.h. of graduate credit. Students entering without previous graduate work usually require at least four years to complete the program; those entering with previous graduate training usually require three to five additional years in the department, depending on the nature of the earlier preparation.

The Ph.D. program places strong emphasis on preparation for research, teaching, and scholarly endeavor, whether in academic settings or in industrial, governmental, or medical institutions. The intent is to produce graduates who are deeply committed to the study of psychology, familiar with fundamental knowledge about psychological processes, well-trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make contributions to the discipline of psychology and to society.

Graduate training is organized in six broad areas: behavioral and cognitive neuroscience, clinical psychology, cognition and perception, developmental science, health psychology, and personality and social psychology (see "Graduate Training Areas" later in this section). Each entering student is expected to identify one of these as his or her primary area and to follow a program that develops thorough understanding of the substantive material and methods of investigation central to that subdiscipline. While pursuing specialty training, all students must meet course requirements in statistics and research methods and in content areas other than their primary one.

The training area programs are sufficiently flexible to permit students to develop substantial competence in a second training area. Individually tailored programs are possible.

**Curriculum**

The required 72 s.h. for the Ph.D. includes at least 33 s.h. in Department of Psychology courses. All students must satisfy, through one of several options, requirements in statistics and research methods. They also must take course work outside the primary training area to develop a background in the discipline of psychology as a whole.

During each of the first two semesters, graduate students ordinarily take three courses—for example, a statistics course, a course or two in the primary training area, and/or an outside area elective. Students also begin their research under the supervision of their advisor and with the guidance of their research advisory committee.

Near the end of the fall semester of the second year, students submit a report describing their research to date. At the beginning of the following semester, they present their research at the annual graduate research symposium.

During subsequent years, students continue selected course work in their training and interest areas and continue to
develop their research programs. In addition, they develop a prospectus for the dissertation research and take the comprehensive examination, which covers material in the specialty area. The final year is devoted primarily to conducting the Ph.D. study and preparing the dissertation. In the Ph.D. final examination, students present an oral defense of their dissertation and are expected to relate the dissertation work to broader issues in the discipline of psychology.

**Graduate Training Areas**

**Behavioral and Cognitive Neuroscience**

The program in behavioral and cognitive neuroscience focuses on the analysis of attention, motivation, and learning, primarily in nonhuman subjects, through the application of behavioral and biological principles. Special faculty strengths are in classical and operant conditioning, motivation and emotion, developmental psychobiology, neurobiology of learning, comparative psychology, cognitive neuroscience, neuropharmacology, neuroendocrinology, and neuroanatomy. Students in this program have the opportunity to learn state-of-the-art techniques in computer-controlled experimentation and electronic instrumentation as well as advanced analytic and laboratory methods in neurosurgery, histology, and biochemical assay.

Faculty members in the behavioral and cognitive neuroscience area interact extensively with colleagues from a number of basic science and clinical departments in the Carver College of Medicine, including anatomy, anesthesiology, pharmacology, internal medicine, pediatrics, and neurology. These collaborative activities provide excellent research and training opportunities for students interested in emerging interdisciplinary fields such as behavioral medicine.

**Clinical Psychology**

The clinical training program, fully approved by the American Psychological Association, strongly emphasizes a scientific or clinical science approach to the study of mental and physical health. It is designed for students who intend to pursue careers in clinical research and are interested primarily in developing scholarly understanding of clinical phenomena and acquiring research skills necessary to the systematic investigation of such phenomena. Because students must become familiar with clinical material and competent in the application of clinical skills in order to pursue clinical research, the department closely integrates practicum experience in the Seashore Clinic with course work and supervised research experience. Students with a primary interest in clinical practice should apply to another program.

Students in the clinical program may develop special competence in areas such as aggression, marital and family dysfunction, eating disorders, personality and personality disorders, psychophysiology, anxiety disorders, affective disorders, behavioral and cognitive therapies, child psychopathology, and clinical health psychology. Faculty members collaborate actively with colleagues from departments such as internal medicine, microbiology, neurology, obstetrics and gynecology, otolaryngology–head and neck surgery, pediatrics, psychiatry, and surgery, and from other units, such as the Center for Health Services Research and the Iowa City Veterans Affairs Medical Center.

Advanced students have opportunities to gain additional practicum experience through placement in clinical facilities maintained by local, state, federal, and University agencies. Students in the clinical program who wish to have the designation "clinical psychology" on their official transcript must satisfactorily complete a one-year internship at an approved agency before receiving a Ph.D. The internship ordinarily comes after completion of all course work and supervised research experience. Students in the clinical psychology program's accreditation, contact the Office of Program Consultation and Accreditation, American Psychological Association.

**Cognition and Perception**

The cognition and perception training area is guided by the philosophy that understanding a specific cognitive process requires an understanding of how it interacts with other cognitive processes (e.g., interactions between attention and memory). The area pursues empirical rigor and theoretical development, so its research is theory driven and data tested.

Research programs of the area's laboratories overlap with each other, and most content areas are studied by multiple laboratories and with multiple methodologies. Areas of strength include categorization, computational modeling, judgment and decision making, language and language learning, learning and memory, visual cognition, attention, and working memory.

Students in perception and cognition take basic courses and seminars in specialty areas, but they devote most of their time to research activities. Students work closely with a faculty mentor at first and then become progressively independent as they gain knowledge and skills. The program encourages students to work with more than one faculty member, both in the program and across the department and the University. Students often combine basic work on cognition with work in areas such as neuroscience, psychiatry, marketing, law, social psychology, and human factors engineering.
Developmental Science

Students in the developmental program are taught a broad range of developmental theory, and they acquire expertise in multiple research paradigms used in developmental psychology, such as observational research, experimentation, and field methods. Students also have the opportunity to study and collaborate with faculty members who are not primarily developmental psychologists but whose work has implications for developmental theory. This opportunity provides a unique breadth of training.

Students take courses in many areas of developmental science as well as in other areas of psychology. Currently available to students are research opportunities in cognitive development in infancy and childhood, social and emotional development, and developmental psychobiology. The developmental research group, composed of faculty members and students interested in issues related to developmental research, meets regularly to discuss ongoing research. These meetings provide both students and faculty members the opportunity to present and discuss their own research as well as to gain exposure to other developmental work being conducted in the department.

Health Psychology

The health psychology program is concerned with application of psychological theory, methods, and treatment to understanding and promotion of physical health and illness. The program's perspective is based on the biopsychosocial model, which posits that biological, psychological, and social processes are integrally and interactively involved in physical health and illness.

Graduate training in health psychology emphasizes the integration of knowledge about biological, psychological, and social factors. Students are involved in research whose content and methods reflect the biopsychosocial perspective. Training in health psychology is facilitated by the faculty's longstanding collaborations with medical practitioners and researchers at the UI Carver College of Medicine and University of Iowa Hospitals and Clinics. Availability of medical populations and state-of-the-art medical technologies afford a unique opportunity for doctoral students in health psychology.

Research areas of the health psychology program include stress and illness, psychoneuroimmunology, patient adherence, animal models of hypertension and heart failure, postpartum depression, women's health issues, and psycho-oncology.

Personality and Social Psychology

The personality and social psychology program offers a variety of perspectives on interpersonal and intrapersonal processes. The program has three specializations: personality, social psychology, and social development. The specializations are interconnected in terms of people and research foci. Examples of some research foci are social cognition, social comparison, close relationships, social and emotional development, social influence, decision making, health psychology, and personality and individual differences.

Graduate training in the personality and social psychology program is designed primarily to prepare students for careers in psychology research and teaching. In addition to their experiences and course work in the program and in the Department of Psychology, students can benefit from opportunities in related academic units at the University, such as the Departments of Sociology, Communication Studies, and Statistics and Actuarial Sciences and the Tippie College of Business. Such experience can broaden a student's training, research opportunities, and employment prospects.

Admission

Since the graduate program in psychology is designed primarily for students seeking the Ph.D., all applicants are considered on that basis. Occasionally, a qualified applicant who is in good standing in another UI graduate program and is interested in advanced work in psychology only through the M.A. level may be admitted to pursue a joint graduate program. Students interested in such a program should contact the department chair before filing an application.

The application deadline is December 15. For all materials to be on file by that date, applicants should take the Graduate Record Examination (GRE) General Test in October, and no later than December. The subject test in psychology is not required. Applications may be submitted any time but are considered only once each year--between December 15 and February 1--for admission the following fall. Admission decisions are based on a composite consideration of prior academic and research performance; letters of reference; scores on the verbal, quantitative, and analytic writing sections of the GRE General Test; and the applicant's statement about background and purpose. Admission materials are reviewed initially by faculty members in the applicant's primary training area.

An undergraduate major in psychology—including a laboratory course in experimental psychology, a course in statistics, and additional work in the natural sciences and in mathematics—is desirable but not required. Students who have not had such a background but are strongly qualified on other grounds may be admitted. They are expected to remedy deficiencies through special course work or independent study before embarking on the regular graduate program.
Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Financial Support**

All students admitted to the Ph.D. program in psychology are guaranteed five years of financial support, as long as they make satisfactory progress and remain in good academic standing. Financial support is provided through fellowships, teaching assistantships, research assistantships, and traineeships, depending on merit and availability. No separate application for financial aid is required.

**Faculty**

Faculty members of the Department of Psychology are nationally and internationally renowned leaders in a variety of subdisciplines. Their research is funded by numerous federal and private research grants, their findings are documented in many publications, and their accomplishments have won many awards.

**Facilities**

The department’s facilities for graduate training and research are among the finest in the country. The Kenneth W. Spence Laboratories of Psychology and adjoining space in Seashore Hall include a variety of laboratories for human and animal studies. Facilities include animal housing areas; a histology laboratory; observation suites with remote audiovisual control and recording equipment; soundproof chambers; electrophysiological recording rooms; conditioning laboratories; the Seashore Clinic; and well-equipped electronic, mechanical, and woodworking shops.

Computers are widely available. Office space for graduate students and faculty members is provided in Seashore Hall. The psychology branch of the University of Iowa Libraries, with major collections in all areas, is conveniently located in the west wing of Seashore Hall.

The research and teaching activities of the department greatly benefit from the facilities and staff of other University and local agencies, including University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, the University Counseling Service, the Center for Disabilities and Development, the Wendell Johnson Speech and Hearing Clinic, the Center for Health Services Research, and the School of Social Work.

**Psychology Courses**

**Primarily for Undergraduates**

Courses 031:013 Introduction to Clinical Psychology, 031:014 Introduction to Developmental Science, 031:015 Introduction to Social Psychology, 031:016 Introduction to Cognitive Psychology, and 031:019 Industrial/Organizational Psychology are open to first-year students who have satisfactorily completed an introductory psychology course sequence (031:001 Elementary Psychology and 031:002 Biological Psychology, or equivalents).

**031:001 Elementary Psychology**

Psychology as a behavioral science. GE: Social Sciences.

**031:002 Biological Psychology**

Biological mechanisms of behavior; comparative study of behavior, behavioral organization, animal intelligence, social behavior, communication; behavioral neuroscience, how brain systems control sensation, movement, homeostasis, emotion, learning. Prerequisite: 031:001.

**031:010 Research Methods in Psychology**

Logic of experimental and nonexperimental methods, application of methods to analysis of behavioral phenomena; skills for critical evaluation of professional and public literature dealing with scientific study of behavior: philosophy of scientific psychology, principles of research design and control, psychological testing, applications in several research areas. Prerequisites: 031:001 and 031:002.

**031:013 Introduction to Clinical Psychology**

Introduction to abnormal psychology; scientist-practitioner model, training, ethics, research methods in clinical psychology; current approaches to intellectual, personality, behavioral assessment; theories, research on treatment of psychological disorders. Prerequisites: 031:001 and 031:002. GE: Social Sciences.

**031:014 Introduction to Developmental Science**

3 s.h.
Current research in developmental science; prenatal development, brain development, motor and physical development, perceptual development, language development, cognitive development, aspects of socio-emotional development; emphasis on modern theoretical approaches. Prerequisites: 031:001 and 031:002. GE: Social Sciences.

**031:015 Introduction to Social Psychology** 3 s.h.
Research and theories on people's thoughts, feelings, and behaviors in social situations; attitudes, attributions, person perception, aggression, stereotypes and prejudice, attraction, relationships, social influence, group processes, altruism. Prerequisites: 031:001 and 031:002.

**031:016 Introduction to Cognitive Psychology** 3 s.h.
Individual human cognition; perception, attention, memory, language, learning, problem solving, decision making, thought considered from viewpoint of information processing. Prerequisites: 031:001 and 031:002. GE: Social Sciences.

**031:019 Industrial/Organizational Psychology** 3 s.h.
Applications of psychology to problems in world of work; emphasis on personnel selection, training, attitudes, motivation, measurement of job performance. Prerequisite: 031:001.

**031:029 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

**031:040 Psychology of Interpersonal Relations** 3 s.h.
Theories, empirical findings, speculation from social psychology and related disciplines regarding how people form, maintain, and alter close, interpersonal relationships. Prerequisite: 031:001.

**031:041 Loss and Trauma** 3 s.h.
How people deal with loss—personal (e.g., aging) and interpersonal (e.g., death and divorce). Prerequisite: 031:001.

**031:050 Psychology of Aging** 3 s.h.
The later years of human life viewed from perspectives of developmental psychology, biology, sociology. Prerequisite: 031:001 or equivalent. Same as 153:150.

**031:063 Abnormal Psychology: Health Professions** 3 s.h.
Introduction to psychological disorders; description of psychopathology; general issues in etiology and treatment; for non-psychology students in allied health professions. Prerequisites: 031:001 and non-psychology major.

**031:076 Psychology of Gender** 3 s.h.
Origins of gender roles, gender socialization in childhood, gender differences across lifespan; research on gender differences in cognition, emotions, behavior, physical and mental disorders, communication. Prerequisite: 031:001.

For Undergraduate and Graduate Students

Before enrolling in any upper-level undergraduate courses, students must complete all specified lower-level prerequisites or obtain consent of instructor.

**031:103 Social and Personality Development** 3 s.h.
Emotional, social, and personality development from infancy to adolescence; major theories and empirical research; child temperament, parent-child relationship, and social context as contributors to individual differences. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or 031:015 or equivalent, and 031:010 or equivalent.

**031:105 Personality** 3 s.h.
Classic theoretical models and contemporary empirical research in personality, including influence of heredity and environment, consistency and stability of behavior. Prerequisites: an approved statistics course, grade of C- or higher in 031:013 or 031:015 or equivalent, and 031:010 or equivalent.

**031:106 Attitude Change** 3 s.h.
Current theoretical approaches; laboratory and field methods of research; basic processes of change considered within broader framework of psychology. Prerequisites: an approved statistics course, grade of C- or higher in 031:015 or equivalent, and 031:010 or equivalent.

031:107 Environmental Stress 3 s.h.
Social psychological aspects of urban living, crowding, control, institutionalization, energy utilization; theory and research on stress, arousal, emotion. Prerequisites: an approved statistics course, grade of C- or higher in 031:015 or equivalent, and 031:010 or equivalent.

031:111 Social Cognition 3 s.h.
Research and theory on cognitive structures and processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, schemas, person perception, stereotypes, attitudes. Prerequisites: an approved statistics course, grade of C- or higher in 031:015 or equivalent, and 031:010 or equivalent.

031:112 Development of Mathematical Cognition 3 s.h.
Current research on mathematical cognition, with focus on change over time; quantity and number, the mental number line, symbols, fractions, algebra, individual differences in math cognition, relationships between math and language, theories of mathematical knowledge, theories of conceptual change. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or 031:016 or equivalent, and 031:010 or equivalent.

031:114 Cognitive Development of Children 3 s.h.
Developmental research, theory concerning children's concepts, thinking, problem solving, memory, communication. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or equivalent, and 031:010 or equivalent.

031:115 Theories of Developmental Psychology 3 s.h.
Major theoretical approaches to the study of developmental change (e.g., social learning, information-processing, ethological, contextual); related topics such as perceptual development and attachment. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or equivalent, and 031:010 or equivalent.

031:117 Psychology of Prenatal Development 3 s.h.
Behavior before and immediately after birth; embryology and development of fetus, preterm infant, and neonate; motor development, sensation, learning, adaptation to intrauterine conditions. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or 031:014 or equivalent, and 031:010 or equivalent.

031:118 Infant Development 3 s.h.
Physical, motor, perceptual, cognitive, and social development during first two years of life, with focus on early mechanisms of change; locomotion, perceptual abilities, precursors of cognition, early language acquisition, social interaction. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or equivalent, and 031:010 or equivalent.

031:119 Human Memory 3 s.h.
Contemporary psychological theory and research on short-term and long-term memory, acquisition processes, related topics in cognition. Prerequisites: an approved statistics course, grade of C- or higher in 031:016 or equivalent, and 031:010 or equivalent.

031:121 Laboratory in Psychology 4 s.h.
Laboratory study of an aspect of behavior; topics in a particular area (e.g., learning and memory, perception, social behavior, operant behavior, physiological processes). Prerequisites: an approved statistics course, grade of C- or higher in 031:010 or equivalent; additional prerequisites for some sections.

031:122 Language Development 3 s.h.
Introduction to first language acquisition, with focus on infancy through five years; sound discrimination abilities, word learning, babbling and speech production, acquisition of grammar; perspectives from psychology, audiology, linguistics, speech pathology. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or 031:016 or equivalent, and 031:010 or equivalent. Same as 164:140.

031:123 Psychology of Learning 3 s.h.
Psychological science of acquired behavior; interests in experimental study of Pavlovian conditioning, operant conditioning, cognition in humans and nonhuman animals, relevance to behavioral adaptation. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or 031:016 or equivalent, and 031:010 or equivalent.
031:125 **Comparative Psychology**
Behavioral processes in humans, animals; intelligence, memory, attention, language, consciousness; behaviorism, mentalism, evolution, neuropsychology. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or equivalent, and 031:010 or equivalent.

031:126 **Behavioral Neuroscience**
Basic concepts and techniques in neurosciences, their application to analysis of sensory processes, arousal mechanisms, motivation, learning. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or equivalent, and 031:010 or equivalent.

031:128 **Psychopharmacology**
How drugs act to influence behavior; general principles of drug action on the nervous system; licit and illicit drugs, use/abuse, historical perspective on drug use. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or equivalent, and 031:010 or equivalent.

031:129 **Neurobiology of Learning and Memory**
Major topics in the neurobiology of learning and memory; focus on anatomical, cellular, molecular bases of various learning and memory processes. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or equivalent, and 031:010 or equivalent.

031:130 **Psychology of Thinking**
Problem solving, reasoning, judgment and decision making, language and thought, intelligence, creativity. Prerequisites: an approved statistics course, grade of C- or higher in 031:016 or equivalent, and 031:010 or equivalent.

031:131 **Cognitive Science**
Introduction to cognitive science, an interdisciplinary enterprise that investigates psychological processes using perspectives from psychology, computer science, linguistics, philosophy, neuroscience. Prerequisites: an approved statistics course, grade of C- or higher in 031:016 or equivalent, and 031:010 or equivalent.

031:133 **Sensation and Perception**
Psychological and neurophysiological examination of humans' major sensory systems, especially vision. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or 031:016 or equivalent, and 031:010 or equivalent.

031:134 **Cognition and the Brain**
Analysis of brain systems and neuroanatomy that underlie cognitive tasks such as vision, hearing, emotion, attention, language, decision making, learning, and memory. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or 031:016 or equivalent, and 031:010 or equivalent.

031:138 **Health Biopsychology**
Biological bases of behavior applied to understanding the nature of physical and mental pathological processes. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or 031:152 or equivalent, and in 031:010 or equivalent.

031:152 **Health Psychology**
Psychological contributions to understanding etiology, prevention, treatment of physical illness; basic and clinical research that addresses reciprocal effects of behavior and physical health. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or 031:013 or 031:015 or equivalent, and 031:010 or equivalent.

031:163 **Abnormal Psychology**
Etiology, phenomenology, and treatment of child and adult DSM-IV psychological disorders (e.g., mood disorders, psychotic disorders, anxiety disorders, personality disorders). Prerequisites: an approved statistics course, grade of C- or higher in 031:013 or equivalent, and 031:010 or equivalent.

031:166 **Childhood Psychopathology**
Major forms of childhood psychopathology; current theoretical approaches and methodological issues in diagnosis, conceptualization, treatment of developmental psychopathology. Prerequisites: an approved statistics course, grade of C- or higher in 031:013 or equivalent, and 031:010 or equivalent.

031:170 **Behavior Modification**

Basic approaches to modification of clinically distressing behavior; learning theory principles underlying techniques, translation into procedures, experimental evaluation of effectiveness. Prerequisites: an approved statistics course, grade of C- or higher in 031:013 or equivalent, and 031:010 or equivalent.

**031:173 Substance Use and Misuse in America**  
3 s.h.  
Current data on epidemiology, assessment and diagnosis, treatment, prevention of substance misuse. Prerequisites: an approved statistics course, grade of C- or higher in 031:013 or equivalent, and 031:010 or equivalent. Recommended: 031:163. Same as 172:160.

**031:174 Mind and Behavior**  
3 s.h.  
Theories of what it is to act and know, of what intelligence might be in animals, humans, machines; perspectives from philosophy, psychology. Prerequisites: (for 031:174) an approved statistics course, grade of C- or higher in 031:002 or 031:016 or equivalent, 031:010 or equivalent, and junior or senior standing or consent of instructor. Prerequisite: (for 033:144) junior or senior standing or consent of instructor. Same as 033:144.

**031:177 Field Methods: Animal Behavior Research**  
3 s.h.  
Observation of animal behavior, collection of behavioral data in the field; field trip and visits to varied habitats to view animals under natural conditions. Prerequisites: an approved statistics course, grade of C- or higher in 031:002 or equivalent, and 031:010 or equivalent, and consent of instructor.

**031:185 Research Practicum in Psychology**  
arr.  
Small-group participation in faculty research projects; literature review, study planning, data collection, analysis, interpretation, write-up. Prerequisite: consent of instructor.

**031:188 Advanced Research Practicum**  
1-3 s.h.  
Individual participation in faculty research projects; significant reading and writing. Prerequisites: two semesters of 031:185 or 143:100, and consent of instructor.

**031:189 External Practicum in Psychology**  
1-3 s.h.  
Student participation in career-related professional activities in community and University of Iowa agencies. Prerequisite: consent of instructor.

**031:190 Psychology Seminar**  
3 s.h.  
Readings from original sources, presentations, papers, student participation. Prerequisites: an approved statistics course, grade of C- or higher in 031:010 or equivalent, psychology B.S. enrollment and senior standing.

**031:191 Individual Readings and Projects**  
1-3 s.h.  
Prerequisites: psychology major, undergraduate standing, and consent of instructor.

**031:192 Teaching/Advising Practicum in Psychology**  
1-3 s.h.  
Participation in faculty teaching (undergraduate teaching assistant) or the Psychology Peer Advisor Program. Prerequisite: consent of instructor.

**031:195 Honors Proseminar in Psychology**  
1 s.h.  
Research topics, psychology colloquium attendance and discussion, student presentations on honors project progress. Prerequisite: honors standing and psychology honors project in progress.

**031:199 Honors Thesis Research**  
1-3 s.h.  
Supervised original project; leads to written thesis, oral defense. Prerequisites: honors standing and consent of instructor.

**Primarily for Graduate Students**

**031:201 Advanced Social-Personality Psychology**  
3 s.h.  
Classic and contemporary theory, research, methodological issues in social-personality psychology. Prerequisite: consent of instructor.

**031:202 Attitudes and Persuasion**  
3 s.h.  

Classic and current theories and findings on persuasion, the formation and measurement of attitudes.

031:206 Advanced Social Cognition
Research and theory on cognitive processes that underlie judgment, decision, belief, and behavior in social situations; attribution, heuristics, counterfactual thinking, schemas, person perception, stereotypes, attitudes. 3 s.h.

031:208 Psychology of Close Relationships
Theory, general writing, empirical analysis of variables involved in initiation, maintenance, termination of close relationships; emphasis on social psychological processes, concepts. 3 s.h.

031:210 Proseminar in Developmental Science
Introduction to developmental process and developmental science; topics organized around mechanisms of development, with cross-disciplinary focus. Prerequisite: consent of instructor. 3 s.h.

031:214 Processes of Language Acquisition
Theoretical and computational approaches to the study of first language acquisition from infancy to five years, including prelinguistic sound discrimination, babbling, semantic development, categorization abilities, syntactic and grammatical development. 3 s.h.

031:216 Dynamic Systems and Development
Dynamical systems theory, its application to basic problems in developmental psychology; development of motor control, cognition, language; comparisons with other theoretical approaches in developmental psychology. 3 s.h.

031:217 Psychobiology of Prenatal Development
Current research on behavior before and immediately after birth; embryology and development of fetus, preterm infant, neonate; motor development, sensation, learning, adaptation to intrauterine conditions. 3 s.h.

031:218 Cognitive Development
Theoretical and empirical analyses of children's cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory. Same as 164:240. 3 s.h.

031:220 Proseminar in Cognition and Perception
Broad overview of study of cognition, including cognitive psychology, computer science and artificial intelligence, linguistics, neuroscience, philosophy of mind. Repeatable. Prerequisite: consent of instructor. 3 s.h.

031:223 Neural Networks in Psychology
Major techniques in neural network or connectionist modeling; specific application to issues in psychology. Prerequisite: consent of instructor. 3 s.h.

031:226 Visual Perception
Theoretical and empirical analyses of low- and high-level visual functions, including edge detection, surface representation, object identification. 3 s.h.

031:227 Attention
Theory and research on attention, from viewpoints of cognitive psychology and cognitive neuroscience, including historical perspectives, recent approaches. 3 s.h.

031:230 Behavioral Pharmacology
Behavioral analysis of drug action; emphasis on physiological and biological mechanisms underlying behavioral processes in experimental animals, humans. 3 s.h.

031:234 Developmental Psychobiology
Biological bases of behavior in developing organisms; may include thermoregulation, ingestion, sleep, parent/offspring interactions, sensation motor control, learning, memory. 3 s.h.

031:236 Fundamentals of Clinical Behavioral Neuroscience
Physiological basis of behavior and cognition in normal and pathological states; body and brain functions that affect psychological processes, their role in mental and somatic health and disease. Prerequisite: consent of instructor. 3 s.h.

031:240 Judgment and Decision Making
3 s.h.
Models, methods used in study of human judgments and decisions; applications in areas such as clinical diagnosis, social and educational evaluations, economic judgments, consumer decisions.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>031:241</td>
<td>Fundamentals of Behavioral Neuroscience</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of neuroscience, sensation, motivation, emotion. Prerequisite: consent of instructor. Same as 132:241.</td>
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<tr>
<td>031:242</td>
<td>Fundamentals of Learning and Behavior</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of comparative psychology, motor control, learning. Prerequisite: consent of instructor. Same as 132:242.</td>
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<tr>
<td>031:244</td>
<td>Behavioral Neuroscience</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Basic principles of neurochemistry, neuropharmacology, developmental neuroscience, behavioral neuroscience. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:245</td>
<td>Quantitative Methods in Psychology</td>
<td>3 s.h.</td>
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<td></td>
<td>Overview of statistical methods based on the general linear model, including ANOVA, ANCOVA, and multiple regression; how to conduct these analyses using SPSS. Prerequisite: first-year graduate standing in psychology.</td>
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<tr>
<td>031:250</td>
<td>Introduction to Health and Behavioral Science</td>
<td>3 s.h.</td>
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<td></td>
<td>Evolution of health psychology; survey of major physiological systems in which pathology is affected by behavioral processes; review of theoretical approaches, experimental paradigms from behavioral science as they may apply to assessment of health problems; prevention, intervention, psychological adaptation to physical disease. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:252</td>
<td>Clinical Behavioral Medicine</td>
<td>3 s.h.</td>
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<td></td>
<td>Biopsychosocial framework applied to study, treatment of chronic and acute physical conditions; clinical concepts, procedures. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:258</td>
<td>Personality and Individual Differences</td>
<td>3 s.h.</td>
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<td></td>
<td>Major theoretical, empirical issues in contemporary personality research, including stability and consistency of behavior, influence of heredity and environment in personality development, nature and organization of traits, validity of trait inferences.</td>
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<tr>
<td>031:260</td>
<td>Descriptive Psychopathology</td>
<td>3 s.h.</td>
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<td></td>
<td>Psychiatric syndromes, including description, etiology, experimental and clinical research; development, function of classification systems. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:261</td>
<td>Experimental Psychopathology</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Theories of psychobiological processes underlying etiology of psychopathology; emphasis on schizophrenia, affective disorders, anxiety, psychopathy, alcoholism/drug abuse. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:263</td>
<td>Psychological Appraisal I</td>
<td>3 s.h.</td>
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<td></td>
<td>Assessment theory and basic psychometric principles in test construction, evaluation, application; ethical, social, psychological, psychometric issues and controversies in assessment. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:264</td>
<td>Psychological Appraisal II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to assessment with children and adults, including assessment of cognitive abilities and achievement testing, neuropsychological assessment, and psychodiagnostic/personality assessment. Prerequisites: 031:263 or equivalent, and consent of instructor.</td>
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<tr>
<td>031:265</td>
<td>Neuroscience Seminar</td>
<td>0-1 s.h.</td>
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<td></td>
<td>Research presentations. Offered fall and spring semesters. Prerequisite: consent of instructor. Same as 002:265, 060:265, 072:265, 132:265.</td>
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<tr>
<td>031:266</td>
<td>Psychological Therapies</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Historical development and current status of empirically based therapies for psychological disorders, including anxiety, depression, schizophrenia, childhood disorders; emphasis on critical evaluation of therapy techniques.</td>
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<tr>
<td>031:270</td>
<td>Clinical Research Methods</td>
<td>3 s.h.</td>
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</tbody>
</table>
Scientific basis of rigorous psychological research; conceptual and methodological processes that underlie sound research; development of capacity for critical evaluation of the research process. Prerequisite: consent of instructor.

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<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>031:276</td>
<td>Advanced Developmental Psychopathology</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Psychiatric syndromes manifested in childhood and adolescence; theoretical approaches, methodology from developmental and clinical psychology as they apply to study of childhood psychopathology. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:278</td>
<td>Principles of Neuropsychology</td>
<td>3 s.h.</td>
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<td></td>
<td>Principles of human neuropsychology, including foundations (history, methods, approaches), major functional systems (vision, memory, language, spatial processing), executive functions (emotional processing and personality), and applications (experimental, clinical). Recommended: prior course work in psychological assessment, psychopathology, and neuroanatomy.</td>
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<tr>
<td>031:280</td>
<td>Current Topics in Psychology</td>
<td>3 s.h.</td>
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<td></td>
<td>Repeatable.</td>
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<tr>
<td>031:291</td>
<td>Problems in Psychology</td>
<td>arr.</td>
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<td></td>
<td>Individual study. Prerequisite: consent of instructor.</td>
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<td></td>
<td>Prerequisite: consent of instructor.</td>
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<td></td>
<td>Prerequisite: consent of instructor.</td>
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<tr>
<td>031:297</td>
<td>Research Projects</td>
<td>arr.</td>
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<td></td>
<td>Prerequisite: consent of instructor.</td>
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<tr>
<td>031:302</td>
<td>Seminar: Personality and Social Psychology</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Professional issues, current topics relevant to personality, social psychologists. Repeatable. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:303</td>
<td>Advanced Topics in Social Psychology</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Recent theory, research.</td>
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<tr>
<td>031:315</td>
<td>Seminar: Social Development</td>
<td>0-2 s.h.</td>
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<td></td>
<td>Theoretical, methodological, and empirical issues in early social and personality development.</td>
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<tr>
<td>031:318</td>
<td>Seminar: Cognitive Development</td>
<td>0-3 s.h.</td>
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<td></td>
<td>Theoretical, methodological issues focused on cognitive and perceptual development. Repeatable.</td>
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<tr>
<td>031:330</td>
<td>Seminar: Cognitive Psychology</td>
<td>2 s.h.</td>
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<td></td>
<td>Repeatable. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:335</td>
<td>Seminar: Cognitive Neuroscience</td>
<td>0-2 s.h.</td>
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<td></td>
<td>Neurological and behavioral investigations of attention, perception, learning, memory, decision making, planning; contemporary models, theories. Prerequisite: consent of instructor.</td>
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<tr>
<td>031:338</td>
<td>Seminar: Advanced Topics in Behavioral and Cognitive Neuroscience</td>
<td>3 s.h.</td>
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<td>Prerequisite: 031:241 or consent of instructor.</td>
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<tr>
<td>031:360</td>
<td>Seminar: Orientation to Clinical Research</td>
<td>0-1 s.h.</td>
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<tr>
<td></td>
<td>Issues in clinical research, including use of databases, advisor/advisee relationships, preparation of IRB proposals, paper presentation and publication, common early career problems, funding resources.</td>
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<tr>
<td>031:365</td>
<td>Seminar: Neuropsychology and Neuroscience</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Clinical neuropsychology and cognitive neuroscience: cutting-edge research from scientific journals, case presentations in clinical neuropsychology, and current research. Same as 064:365, 132:365.</td>
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</tbody>
</table>
031:380 Ethics and Professional Concerns
Major ethical and legal issues relevant to clinical psychologists' varied roles; understanding of legal and ethical issues encountered by psychologists in varied settings, development of personal working model for resolving ethical and professional concerns.

031:461 Introductory Practicum
Orientation to Department of Psychology clinic, including instruction in interviewing, observation of clinic procedures, attendance at clinic rounds under supervision of clinical psychology faculty members. Prerequisite: consent of clinical training committee.

031:462 Assessment Practicum
Supervised practice in psychological assessment techniques. Prerequisite: consent of clinical training committee.

031:463 Therapy Practicum
Supervised practice and clinical experience in application and evaluation of psychological therapies. Prerequisite: consent of clinical training committee.

031:464 External Practicum
Supervised practice and clinical experience in field setting; psychological assessment techniques and/or application, evaluation of psychological therapies. Prerequisite: consent of clinical training committee.
Religious Studies

Chair: Raymond A. Mentzer
Professors: Jay A. Holstein, David E. Klemm, Raymond A. Mentzer, Frederick M. Smith (Religious Studies/Asian and Slavic Languages and Literatures)
Associate professors: Diana Fritz Cates, Ralph Keen, Michelene Pesantubbee (Religious Studies/American Indian and Native Studies), Morten Schlütter, Ahmed Souaiaia, Richard B. Turner (Religious Studies/African American Studies)
Assistant professors: Melissa Anne-Marie Curley, Howard B. Rhodes
Lecturer: Jordan A. Smith
Undergraduate degree: B.A. in Religious Studies
Undergraduate nondegree program: Minor in Religious Studies
Graduate degrees: M.A., Ph.D. in Religious Studies
Web site: http://www.uiowa.edu/~religion

Religion is a major factor in human culture, with the power to unify society as well as to disrupt and divide it. Given the diversity of cultures in a shrinking global context, an understanding of religion and its personal and social roles is a significant element in a liberal arts and sciences education. The Department of Religious Studies helps students acquire an appreciative and critical understanding of the history and literature of major religions in the East and West, and insight into the nature and meaning of the religious dimensions of human culture.

The department recognizes that religious activity is expressed in countless ways. Therefore, it offers a wide range of courses that explore facets of religion in cultures around the world. Topics and issues include religious texts and thinkers as well as how culture, tradition, and experience intersect. Diverse academic methods—including historical, textual, artistic, and literary approaches—are used to study the variety of ways in which religions have formulated values and addressed matters of ultimate concern.

Each year thousands of University students enroll in courses in religious studies. Many are taking courses to complete the College of Liberal Arts and Sciences General Education Program. Some students choose religious studies as their major. Others choose it as a second major or as a minor to complement studies in another field.

Religious studies majors acquire core skills they will need to flourish in today's world: logical thinking, writing, communicating, and working with others, as well as open-mindedness to new ideas.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in religious studies.

Bachelor of Arts

The Bachelor of Arts in religious studies requires a minimum of 120 s.h., including 30 s.h. in work for the major (15 s.h. of foundation studies, 12 s.h. of continuing studies, and the senior seminar). Students must complete the College of Liberal Arts and Sciences General Education Program. They may count a maximum of three religious studies courses toward General Education Program requirements. Transfer students may count a maximum of 15 s.h. of transfer credit toward the major. Transfer credit is evaluated individually.

Requirements for the major in religious studies are as follows.

FOUNDATION STUDIES

Western Religious Traditions

Two of these:

032:001 Judaism, Christianity, and Islam 3 s.h.
032:011 Introduction to the Hebrew Bible/Old Testament 3 s.h.
032:012 Introduction to the New Testament 3 s.h.
032:025/016:035 Medieval Religion and Culture 3 s.h.
032:026/016:036 Modern Religion and Culture 3 s.h.
032:030 Introduction to Islam 3 s.h.
032:034/129:050 Introduction to African American Religions 3 s.h.

Asian Religious Traditions

Two of these:

032:004/039:064 Living Religions of the East 3 s.h.
032:006/039:006 Introduction to Buddhism 3 s.h.
Theoretical and Comparative Studies in Religion

One of these:

- 032:002 Religion and Society 3 s.h.
- 032:003 Quest for Human Destiny 3 s.h.
- 032:016 Religion and Liberation 3 s.h.
- 032:020 War and Peace in Western Religious Thought 3 s.h.
- 032:042 Religion, Ethics, and Politics 3 s.h.

CONTINUING STUDIES

Students must complete 12 s.h. of course work in continuing studies for the major. This work must be chosen from courses in one of three concentration areas: Western religious traditions; Asian religious traditions; or religion, culture, and society. Courses in each area are listed below.

Western Religious Traditions

- 032:051 Religious Thinkers of the West 3 s.h.
- 032:054 Introduction to Catholicism 3 s.h.
- 032:056 Christianity in the United States 3 s.h.
- 032:058/16E:058 Liturgy and Devotion in Christian Tradition 3 s.h.
- 032:061/20E:071 Middle East and Mediterranean, Alexander to Suleiman 3 s.h.
- 032:067 Theological Questions 3 s.h.
- 032:069 Kabbalah in the Marketplace: Jewish Mysticism and the American Religious Environment 3 s.h.
- 032:070 Judaism in the Modern World 3 s.h.
- 032:082/149:080 American Indian Activism 3 s.h.
- 032:085 Early Modern Catholicism 3 s.h.
- 032:090 Women and the Bible 3 s.h.
- 032:092 Messianic and Apocalyptic Prophecy in the Bible 3 s.h.
- 032:094 Jesus and His Interpreters 3 s.h.
- 032:095 The Apostle Paul 3 s.h.
- 032:105 Biblical Israel: Its History and Environment 3 s.h.
- 032:107 The Psalms and Wisdom of Biblical Israel 3 s.h.
- 032:109 Suffering, Death, and the Afterlife in Christianity and Judaism 3 s.h.
- 032:120 Jewish Religious Thought 3 s.h.
- 032:121 The Bible and the Sacrifice of Animals 3 s.h.
- 032:123/20G:123 Classical and Hellenistic Periods II 3 s.h.
- 032:132 Medieval and Reformation Religious Thought 3 s.h.
- 032:136 Religious Thought in Enlightenment 3 s.h.
- 032:137 Modern Religious Thought: 19th Century 3 s.h.
- 032:138 Modern Religious Thought: 20th Century 3 s.h.
- 032:154 Religious Conflict/Early-Modern Period 3 s.h.
- 032:157 Religion and Politics: The Islamic World 3 s.h.
- 032:161 History of Religious Ethics 3 s.h.
- 032:192 Traditions of Religious Reform 3 s.h.

Asian Religious Traditions

- 032:008/039:018 Asian Humanities: India 3 s.h.
- 032:009/039:019 Asian Humanities: China 3 s.h.
- 032:057 Religion in Modern India 3 s.h.
- 032:075/039:075 Asian Religious Classics 3 s.h.
- 032:081 Hindu Religion and Art 3 s.h.
- 032:116 Japanese Religion and Thought 3 s.h.
032:156 The Karma of Words 3 s.h.
032:163/039:162 Turning East 3 s.h.
032:170 Topics in Asian Religions 3 s.h.
032:171/039:163 Indian Religious Texts 3 s.h.
032:172/039:172 Comparative Ritual 3 s.h.
032:174/026:144 Indian Philosophy 3 s.h.
032:175/026:145 Buddhist Philosophy 3 s.h.
032:177/039:136 Indian Literature 3 s.h.
032:188/039:170 Zen Buddhism 3 s.h.

Religion, Culture, and Society

032:052 Women in Islam and the Middle East 3 s.h.
032:060/149:060 Introduction to Native American Religions 3 s.h.
032:063 African American Islam/International Perspective 3 s.h.
032:066 Introduction to Religion and the Arts 3 s.h.
032:071/154:071 Sexual Ethics 3 s.h.
032:073 Nature in Religious Thought and Ethics 3 s.h.
032:076 American Indian Environmentalism 3 s.h.
032:078/149:082 American Indian Women: Myth, Ritual, and Sacred Power 3 s.h.
032:082/149:080 American Indian Activism 3 s.h.
032:103 Biblical Archaeology 1, 3 s.h.
032:104/01H:110 Egyptian Art 3 s.h.
032:111/131:111 Religion and Women 3 s.h.
032:112 The Bible in Film: Hollywood and Moses 3 s.h.
032:125 Conceptions of the Sacred 3 s.h.
032:127/06J:147 Nonprofit Organizational Effectiveness I 3 s.h.
032:128/06J:148 Nonprofit Organizational Effectiveness II 3 s.h.
032:130/033:139/113:139 Religion and Environmental Ethics 3 s.h.
032:139 Religion and Violence in America 3 s.h.
032:140 Religion and Literature 3 s.h.
032:141/16A:122 Varieties of American Religion 3 s.h.
032:146/026:134 Philosophy of Religion 3 s.h.
032:147 Quest II: Sex, Love, and Death 3 s.h.
032:148 Ethics and Modern Religious Thought 3 s.h.
032:149/033:152 Values in the Contemporary World 3 s.h.
032:150 The Bible and the Holocaust 3 s.h.
032:151 Religion and Law 3 s.h.
032:153 Religion and the Arts 3 s.h.
032:155 Human Rights and Islam 3 s.h.
032:158/131:159/149:158 Native American Women and Religious Change 3 s.h.
032:159/091:223 Comparative Islamic Law 3 s.h.
032:160 Religious Identity in the Modern Secular State 3 s.h.
032:161 History of Religious Ethics 3 s.h.
032:162 Genes and the Human Condition 3 s.h.
032:164/20E:115 Greek Religion and Society 3 s.h.
032:165/113:142 Anthropology of Religion 2-3 s.h.
032:167 Islamic Ethics and Political Thought 3 s.h.
032:169 Quest III: Heroes, Lovers, and Knaves 3 s.h.
032:178/039:188 East Meets West: The Western Reception of Eastern Religion 3 s.h.
032:179/035:179 Islamic Cultural Presence in Spain 3 s.h.

SENIOR SEMINAR

All students must complete the senior seminar.

032:196 Senior Majors Seminar 3 s.h.
Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: one or two courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: three to six courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: five to seven courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students who maintain a cumulative University of Iowa g.p.a. of at least 3.33 are eligible for membership in the University of Iowa Honors Program (contact the University of Iowa Honors Program for more information). Honors majors must complete a total of 33 s.h. to fulfill the requirements for the religious studies major. Students must take 032:198 Honors Essay under the supervision of a faculty advisor. Copies of the completed and approved essay are submitted to the Department of Religious Studies and to the University of Iowa Honors Program. Honors students may apply 3 s.h. of 032:195 Individual Study: Undergraduates or 032:197 Honors Tutorial toward their 12 s.h. requirement in the concentration area.

Minor

The minor in religious studies requires a minimum of 15 s.h. in religious studies courses, including 12 s.h. in courses taken at The University of Iowa that satisfy the continuing studies requirement for the major in religious studies (see "Continuing Studies" above). Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. With the recommendation of the department's undergraduate committee and approval of the faculty, students may count a maximum of 3 s.h. of transfer credit toward the minor.

Graduate Programs

The department offers a Master of Arts and a Doctor of Philosophy in religious studies. The graduate programs place religion in a broad intellectual and cultural context, provide a substantial methodological dimension, and help students develop necessary research skills.

The M.A. and the Ph.D. are offered in the following three basic areas of study.

Modern religious thought: theology, philosophy, ethics, and culture

Historical religious traditions

Religion and culture in Asia

A graduate degree in religious studies ordinarily leads to an academic career teaching at the college or university level, or to a career in a religious, nonprofit, or governmental organization.

Master of Arts

The Master of Arts in religious studies requires a minimum of 30 s.h. of graduate credit and is offered with or without thesis. The program is designed for students who wish to advance their understanding of a particular area of religious studies.

Students must complete 24 of the required 30 s.h. at The University of Iowa and must maintain a cumulative g.p.a. of at least 3.00. Requirements for languages and other research tools vary according to the focus of study. M.A. students are supervised by a three-person faculty committee.

All M.A. students complete the following four courses.

032:202 Asian Religious Traditions 3 s.h.
032:203 Western Religious Traditions 3 s.h.
Doctor of Philosophy

The Doctor of Philosophy in religious studies requires a minimum of 72 s.h. of graduate credit. Students may transfer up to 24 s.h. of credit from another accredited graduate school.

The Ph.D. program prepares students to become specialists in the study and teaching of religion. Students are trained in the research skills and methods they will need to become productive scholars in their chosen fields of study. They also are trained to teach religious studies across a broad range of traditions.

Course requirements for the Ph.D. vary according to concentration area. However, all students must complete the following four required courses.

032:201 Teaching Religious Studies 3 s.h.
032:202 Asian Religious Traditions 3 s.h.
032:203 Western Religious Traditions 3 s.h.
032:205 Methods and Theories in the Study of Religion 3 s.h.

All Ph.D. students also must complete four graduate seminars.

Formal admission to Ph.D. candidacy occurs during the student's fourth semester of residency, providing the following conditions are met:

- completion of three of the four courses required for all Ph.D. students, with the fourth in progress (see the course list above);
- evidence of the ability to write scholarly papers;
- a cumulative University of Iowa g.p.a. of at least 3.40;
- satisfactory progress toward fulfillment of the language requirements of the student's program; and
- submission of a plan of study.

Students must pass a comprehensive examination based on a bibliography that covers their concentration area. They also must write a dissertation based on original research and defend it in an oral examination. They may count a maximum of 12 s.h. of dissertation credit toward the degree.

Students working toward a Ph.D. may receive an M.A. upon completing at least 30 s.h. of course work and successfully passing the comprehensive examination.

For more detailed information on graduate programs in religious studies, contact the Department of Religious Studies or the University's Office of Admissions.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants to the M.A. program ordinarily must have a combined verbal and quantitative score of at least 1050 on the Graduate Record Examination (GRE) General Test and a g.p.a. of at least 3.00. Applicants to the Ph.D. program ordinarily must have a combined verbal and quantitative score of at least 1150 on the GRE General Test and a g.p.a. of at least 3.40.

Application materials must include an application form; a transcript of all undergraduate and graduate work (one copy must be sent to the University's Office of Admissions and a second copy must be sent to the Department of Religious Studies); an application or waiver of consideration form for graduate assistantships (see the web page for admission to
graduate study in religious studies); three letters of recommendation; and a writing sample that demonstrates the applicant's ability to engage in critical thinking. Applicants also must submit a brief personal essay that explains their objectives for graduate study and states which area of graduate study in religion will suit their objectives best (see "Graduate Programs" above).

All application materials must be received by February 1 for fall admission.

**Financial Support**

Financial aid awards are made annually on a competitive basis. Preference is given to Ph.D. applicants.

The Department of Religious Studies offers financial support for graduate students in the form of teaching assistantships. The department may nominate eligible applicants for the Presidential Graduate Fellowship or for the Dean's Graduate Fellowship, which promotes recruitment of students from underrepresented groups.

The Gilmore Scholarship, for doctoral students interested in the relationships among religion, the visual arts, and humanistic values, pays up to full tuition for one year. It is awarded every few years.

**Language Study at the University**

The University offers a variety of modern European languages (see French and Italian, German, and Spanish and Portuguese in the Catalog) as well as Greek and Latin (see Classics in the Catalog); Arabic (see French and Italian in the Catalog); and Japanese, Chinese, Sanskrit, and Hindi (see Asian and Slavic Languages and Literatures in the Catalog).

**Religious Studies Courses**

**032:001 Judaism, Christianity, and Islam** 3 s.h.
Introduction to Judaism, Christianity, and Islam; focus on the scriptural foundation and historical development of these related traditions; texts and other forms of religious expression, especially in art, music, literature, law, and philosophy; readings from the Hebrew Bible, New Testament, and the Qur'an; other materials from selected Jewish, Christian, and Muslim thinkers. GE: Historical Perspectives.

**032:002 Religion and Society** 3 s.h.
Meaning of religious questions and answers in traditional and modern social contexts in the West. Offered spring semesters. GE: Humanities.

**032:003 Quest for Human Destiny** 3 s.h.
Quests for destiny in terms of perceived options/goals and ability to recognize, pursue, achieve them. GE: Humanities.

**032:004 Living Religions of the East** 3 s.h.
Religious beliefs, practices in India, China, Japan. GE: Foreign Civilization & Culture, Historical Perspectives. Same as 039:064.

**032:006 Introduction to Buddhism** 3 s.h.
Basic tenets, religious paradigms, historical phases important in the development of Buddhism; from the Buddha's life to evolution of Mahāyāna Buddhism; readings from India, Tibet, China, Japan, Korea, Southeast Asia. GE: Foreign Civilization & Culture, Humanities. Same as 039:006.

**032:008 Asian Humanities: India** 3 s.h.
Introduction to four thousand years of South Asian civilization, through popular stories. GE: Foreign Civilization & Culture, Humanities. Same as 039:018.

**032:009 Asian Humanities: China** 3 s.h.
Literary and philosophical texts of China in English translation. GE: Foreign Civilization & Culture, Humanities. Same as 039:019.

**032:010 Chinese Religions** 3 s.h.
Survey of Chinese religions; Chinese traditional religious beliefs and practices among the elite and the general population; recent developments in mainland China, Taiwan, and the West; religious ideas of Confucianism, Daoism, aspects of Buddhism, ancestor worship, cults of deities, practices such as spirit possession, faith healing, ghost marriages. Same as 039:007.
032:011 Introduction to the Hebrew Bible/Old Testament  
History, religion, and thought of ancient Jews as recorded in their scripture.  

032:012 Introduction to the New Testament  
History, religion, and thought of early Christians as recorded in the New Testament.  

032:014 Introduction to Indian Religions  
Religions with origins in the South Asian geographic region (e.g., Vedas in mid-second millennium BCE, Jainism and Buddhism from sixth to fourth centuries BCE, Sikhism in 15th century, Indian Christianity, Islam); focus on Hinduism and Buddhism; rise of varied literary forms, ritual, rise of devotional religion, Tantra, how religious practices affect indigenous medical traditions, how these traditions developed in different South Asian regions; broad changes in South Asian religion in 20th and early 21st centuries, current politicization of religion.  

032:016 Religion and Liberation  

032:017 Religion in Japanese Culture  
Introduction to Japanese religious and aesthetic traditions from early times through the early modern period; prehistoric artifacts, literature, poetry, drama, architecture, landscaping, tea practices, the visual arts. Same as 39J:017.  

032:020 War and Peace in Western Religious Thought  
History, major themes, and contemporary applications of western religious traditions regarding proper use of armed force; Christian just war and pacifist traditions, Islamic traditions of jihad, debates of issues such as humanitarian intervention, terrorism, nuclear weapons.  

032:025 Medieval Religion and Culture  
Religion in Europe from classical antiquity to dawn of the Reformation; the religious element in traditions such as art, architecture, literature. GE: Historical Perspectives. Same as 016:035.  

032:026 Modern Religion and Culture  
European and American religious life from Renaissance to 21st century; focus on specific themes, such as secularism, regionalism, pluralism. GE: Historical Perspectives. Same as 016:036.  

032:030 Introduction to Islam  
Major areas of Islamic religious tradition: Qur'an, traditions of the Prophet, development and character of Islamic law, theology. GE: Foreign Civilization & Culture, Historical Perspectives.  

032:034 Introduction to African American Religions  
GE: Cultural Diversity, Humanities. Same as 129:050.  

032:042 Religion, Ethics, and Politics  

032:051 Religious Thinkers of the West  
Augustine, Bonaventure, Fichte, Kierkegaard, Heidegger. GE: Humanities.  

032:052 Women in Islam and the Middle East  
Women in the Islamic community and in non-Muslim Middle Eastern cultures; early rise of Islam to modern times; references to women in the Qur'an and Sunnah, stories from Islamic history; women and gender issues. GE: Foreign Civilization & Culture, Humanities. Same as 131:060.  

032:054 Introduction to Catholicism  
Catholic doctrine, liturgy, moral teaching.  

032:056 Christianity in the United States  

032:057 Religion in Modern India  
Topics vary.
032:058 Liturgy and Devotion in Christian Tradition
Liturical traditions and devotional practices in western Christianity; Medieval Christian tradition, changes in liturgy and devotion that occurred with reformations of the 16th and 17th centuries; overview of modern developments. Same as 16E:058.

032:060 Introduction to Native American Religions
GE: Cultural Diversity. Same as 149:060.

032:061 Middle East and Mediterranean, Alexander to Suleiman

032:063 African American Islam/International Perspective
Same as 129:063.

032:066 Introduction to Religion and the Arts
Religion in different art genres, including visual, performing, and literary.

032:067 Theological Questions
Treatment of basic religious questions, such as the meaning of "God," nature of religious symbols, phenomena of skepticism and atheism.

032:069 Kabbalah in the Marketplace: Jewish Mysticism and the American Religious Environment
Main ideas of Kabbalah and Jewish mysticism from a scholarly perspective; how and in what form these ideas were incorporated into American pop culture and American religious culture.

032:070 Judaism in the Modern World
Judaism in the modern period; Jewish religion, influence of major historical events (enlightenment, emancipation, Holocaust, the establishment of the State of Israel); questions of Jewish identity, theology, thought.

032:071 Sexual Ethics
Christian, Jewish, secular perspectives on meaning and value of human sexuality; contemporary sexual ethical issues. Same as 154:071.

032:073 Nature in Religious Thought and Ethics
Diverse religious perspectives on the natural environment; corresponding ethical implications for individual and collective human behavior.

032:075 Asian Religious Classics
Works of South and East Asia; may include Bhagavad Gita, Life of Milarepa, Mencius, Great Learning, Chuang-tzu, Lotus Sutra, Platform Sutra, selected Korean and Japanese works. Same as 039:075.

032:076 American Indian Environmentalism
Same as 149:076.

032:078 American Indian Women: Myth, Ritual, and Sacred Power
Participation of women and girls in native religious traditions; obstacles to knowing and understanding native women's religious roles and experiences. Same as 149:082.

032:081 Hindu Religion and Art
Hinduism's mystery dispelled through examination of its basic concepts, using art works, sacred texts, myths, devotional poetry; what divine power is, what sculpted and painted images of gods and goddesses mean, how Hindu devotees relate to these awesome personages today.

032:082 American Indian Activism
Social/religious/political movements among indigenous people of North America, 18th century to present. Same as 149:080.

032:085 Early Modern Catholicism
Same as 16E:085.
032:090 Women and the Bible
Construction of women's characters and roles in the Jewish and Christian canonical texts; modern feminist biblical interpretations.

032:092 Messianic and Apocalyptic Prophecy in the Bible
 Literary, historical, and theological analysis of biblical prophecies and their impact.

032:094 Jesus and His Interpreters
How Jesus was depicted in the writings of the early church; reasons for the different portrayals.

032:095 The Apostle Paul
Paul, as seen through his letters; social, historical, and religious environments in which the apostle lived and wrote.

032:100 Biblical Hebrew I

032:101 Biblical Hebrew II

032:102 Biblical Hebrew III
Continuation of 032:101. Prerequisites: 032:100 and 032:101, or equivalents.

032:103 Biblical Archaeology
Contributions of Syro-Palestinian archaeological research to understanding historical, cultural backgrounds of biblical period.

032:104 Egyptian Art
Sculpture, painting, architecture, and luxury arts from Pyramid Age to Death of Cleopatra. Prerequisite: 01H:005 or consent of instructor. Same as 01H:110.

032:105 Biblical Israel: Its History and Environment
Historical, intellectual background; focus on patterns of thought, religion in Near East, relation to Israelite religion.

032:107 The Psalms and Wisdom of Biblical Israel
Book of Psalms, Proverbs, Ecclesiastes, and Job examined as classics of biblical hymnody and wisdom poetry.

032:109 Suffering, Death, and the Afterlife in Christianity and Judaism

032:111 Religion and Women
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: Humanities. Same as 131:111.

032:112 The Bible in Film: Hollywood and Moses
How Hollywood has interpreted the Biblical stories of Adam and Eve, Moses, and David the King.

032:116 Japanese Religion and Thought
Same as 39J:109.

032:120 Jewish Religious Thought
Medieval and modern theological tradition of Judaism: Maimonides, Spinoza, Buber, others; historical contexts, modern interpretations.

032:121 The Bible and the Sacrifice of Animals
Why the biblical God permits humans to eat other animals' flesh; fundamental dietary differences between humans and the beasts.

032:122 Classical and Hellenistic Periods I
Readings in Greek literature of the Classical and Hellenistic periods. Prerequisite: 20G:012 or equivalent or consent of instructor. Same as 20G:122.

032:123 Classical and Hellenistic Periods II
Continuation of 20G:122. Prerequisite: 20G:012 or equivalent. Same as 20G:123.

032:125 Conceptions of the Sacred 3 s.h.
How the holy has been experienced and described in Western religion; manifestations of the divine in the ordinary; Christian visionary spirituality, kabbalah, tension between deism and theism in the Enlightenment and beyond.

032:126 Twentieth-Century African American Religion: Civil Rights to Hip-Hop 3 s.h.
Twentieth-century African American religious history; major political and cultural movements, such as civil rights, black power, black feminism/womanism, hip-hop. Same as 129:123.

032:127 Nonprofit Organizational Effectiveness I 3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 042:157, 06J:147, 06T:144, 096:168.

032:128 Nonprofit Organizational Effectiveness II 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 024:148, 042:158, 06J:148, 096:169.

032:130 Religion and Environmental Ethics 3 s.h.
How humans conceptualize the biophysical environment through religious beliefs and practices; how images of the environment influence people's activities, how they are used by grassroots environmental movements. Prerequisite: junior or senior standing or consent of instructor. Same as 033:139, 113:139.

032:132 Medieval and Reformation Religious Thought 3 s.h.
Classics of patristic, scholastic, reformation theology; special attention to relationships among authors, periods, genres.

032:136 Religious Thought in Enlightenment 3 s.h.
Religious thought (1680-1790) that challenged the legitimacy of tradition and attempted to base all of life, including religion, on nature and reason; readings from Spinoza to Lessing, Kant.

032:137 Modern Religious Thought: 19th Century 3 s.h.

032:138 Modern Religious Thought: 20th Century 3 s.h.

032:139 Religion and Violence in America 3 s.h.
Movements in North American history marked by violence (i.e., Peoples Temple, Lakota Ghost Dance, Branch Davidians, Shawnee Movement); the role of violence in expressing and shaping some religious movements.

032:140 Religion and Literature 3 s.h.
Religious themes in great works of literature.

032:141 Varieties of American Religion 3 s.h.
World views of religious groups (e.g., Mormon, Scientology, Jehovah's Witness, Black Muslim, Unification Church of Sun Myung Moon). Same as 16A:122.

032:146 Philosophy of Religion 3 s.h.
Medieval to contemporary treatments of central issues: the nature of faith; the existence and nature of God; religion and ethics; the interpretation of religious texts. Same as 026:134.

032:147 Quest II: Sex, Love, and Death 3 s.h.
Readings from the Hebrew Bible, Sophocles' Antigone, Melville's Billy Budd, Hemingway's The Sun Also Rises, Salinger's A Perfect Day for Banana Fish, the film From Here to Eternity.

032:148 Ethics and Modern Religious Thought 3 s.h.
How modern thinkers address issues at the intersection of religion and ethics; relationship between religion and ethical reasoning, place of authority in the moral life, social and political issues shape modern religious discourse; may include Hume, Kant, Barth, MacIntyre, Adams.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>032:149</td>
<td>Values in the Contemporary World</td>
<td>3 s.h.</td>
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<td>Modern problems in definition and choice of values; writings of</td>
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<td>contemporary ethical theorists, novelists. Same as 033:152.</td>
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<td>032:150</td>
<td>The Bible and the Holocaust</td>
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<td>Religious and philosophic implications of the Holocaust viewed</td>
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<td>through survivors' writings.</td>
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<td>032:151</td>
<td>Religion and Law</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Why do we follow religious and secular laws—to avoid divine wrath or</td>
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<td>civil punishment? Does obedience to law express or degrade</td>
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<td>ethical meaning? How Jewish and Christian thinkers have answered</td>
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<td>these questions; how historical debates in the Jewish and</td>
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<td>Christian religious traditions have shaped contemporary</td>
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<td>Anglo-American legal history.</td>
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<td>032:153</td>
<td>Religion and the Arts</td>
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<td></td>
<td>Analysis, interpretation of religious themes in literature, film,</td>
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<td>painting.</td>
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<td>032:154</td>
<td>Religious Conflict/Early-Modern Period</td>
<td>3 s.h.</td>
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<td>Reformation of 16th century--Lutheran, Calvinist, Radical, English;</td>
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<td>readings from major representatives of each. Same as 16E:123.</td>
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<td>032:155</td>
<td>Human Rights and Islam</td>
<td>3 s.h.</td>
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<td>Human rights in religious and secular discourse, seventh century to</td>
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<td>present; Islamic law, human rights law, religion, politics. GE:</td>
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<td>Humanities.</td>
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<td>032:156</td>
<td>The Karma of Words</td>
<td>3 s.h.</td>
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<td></td>
<td>Key issues in the relationship between Buddhism and the literary</td>
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<td></td>
<td>arts. Same as 039:156.</td>
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<tr>
<td>032:157</td>
<td>Religion and Politics: The Islamic World</td>
<td>3 s.h.</td>
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<td>Major trends in Islamic religious thought since the colonial period,</td>
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<td>focusing on encounters between Islamic and the modern world;</td>
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<td>Ibn Khaldun; renewal movements; varieties of religious reform and</td>
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<td>accommodation; nationalism, socialism, and so forth. Recommended:</td>
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<td>prior Islamic course work.</td>
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<td>032:158</td>
<td>Native American Women and Religious Change</td>
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<td>Native women's diverse experiences and their roles in native</td>
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<td>societies, examined through contact experiences between native and</td>
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<td>nonnative peoples; changes in women's roles in context of</td>
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<td>interactions between native people, missionaries, European</td>
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<td>colonists, and Americans; approaches to re-imaging women's early</td>
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<td>contact roles presented in cultural narratives, archaeology,</td>
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<td>history, ethnography, and missionary records. Same as 131:159, 149:</td>
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<td>158.</td>
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<tr>
<td>032:159</td>
<td>Comparative Islamic Law</td>
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<td>Sources of Islamic law; origins and functions of varied schools of</td>
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<td>jurisprudence; Islamic legal philosophy and Islamic legal rulings</td>
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<td>in contexts of five major schools of law; major legal topics</td>
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<td>covered by the Ottoman Legal Code. Same as 091:223.</td>
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<td>032:160</td>
<td>Religious Identity in the Modern Secular State</td>
<td>3 s.h.</td>
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<td>Shifting relations between organized religions and political</td>
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<td>institutions, between private piety and public life, in the West</td>
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<td>since the Enlightenment; rise of nationalism and the altered role</td>
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<td>of churches since the Revolutionary era; challenges of science and</td>
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<td>philology to traditional understandings of revelation, rise of</td>
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<td>fundamentalism in the wake of those challenges; Christian</td>
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<td>responses to the social effects of the Industrial Revolution;</td>
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<td>intertwining of ethnic, religious, and political identities in the</td>
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<td>late 20th and early 21st centuries.</td>
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<td>032:161</td>
<td>History of Religious Ethics</td>
<td>3 s.h.</td>
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<td>Christian, Jewish ethics from Paul to Martin Buber; focus on</td>
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<td>meaning and value of love.</td>
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<td>032:162</td>
<td>Genes and the Human Condition</td>
<td>3 s.h.</td>
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<td>Ethical, legal, and social implications of the new genetics, with</td>
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<td>focus on the Human Genome Project.</td>
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<td>032:163</td>
<td>Turning East</td>
<td>3 s.h.</td>
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<td>The global nature of pilgrimage, primarily religious travel in or</td>
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<td>to Asia; journeys to single sacred sites, travel circuits to</td>
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<td>multiple destinations, internal or metaphorical pilgrimages. Same as</td>
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<td>039:162.</td>
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</table>
032:164 Greek Religion and Society
From Bronze Age to the Hellenistic period, in context of Mediterranean culture; evidence such as choral hymn, inscribed prayers, magical curses inscribed on lead, architecture, sculpted offerings to the gods. GE: Humanities. Same as 20E:115.

032:165 Anthropology of Religion
Approaches; religious roles; shamanism, witchcraft, curing; mythology; place of religion in social and cultural change. Same as 113:142.

032:167 Islamic Ethics and Political Thought
Islamic ethics and political movements from seventh century CE to modern times. Taught in English. Recommended: Islamic course work.

032:169 Quest III: Heroes, Lovers, and Knaves
Tension between Paganism and the Bible regarding heroism and eroticism; the Song of Songs, stories of Rachel, Samson, Saul, Bathsheba; Plato's Symposium, Hemingway's The Snows of Kilimanjaro, Salinger's For Esmé with Love and Squalor, The Highlander, The Matrix, Bridget Jones' Diary; unmasking knaves to truly appreciate heroes and lovers.

032:170 Topics in Asian Religions
Same as 039:168.

032:171 Indian Religious Texts
Same as 039:163.

032:172 Comparative Ritual
Practice and theory; rituals from religions, including Hinduism, Buddhism, Christianity, Indian religions; theories of interpretation. Same as 039:172.

032:174 Indian Philosophy
Main ideas, major texts. Same as 026:144.

032:175 Buddhist Philosophy
Introduction to main ideas. Same as 026:145.

032:177 Indian Literature
Readings from medieval and modern periods in English translation. Same as 039:136.

032:178 East Meets West: The Western Reception of Eastern Religion
Introduction of religious ideas and forms from India, China, and Japan into Europe and America to late 20th century, from Greeks to New Age. Same as 039:188.

032:179 Islamic Cultural Presence in Spain
Islamic history and culture in the Iberian Peninsula from Middle Ages to present. Taught in Spanish. Prerequisites: two literature courses taught in Spanish numbered above 035:130. Same as 035:179.

032:186 The Literature of Daoism
Texts of philosophical, religious Daoism: Daoism in traditional Chinese political theory, literature, the arts, alchemy and medicine, sexual custom, combat. Taught in English. Same as 039:140.

032:188 Zen Buddhism
Prerequisite: 032:004 or 032:006 or 032:010 or equivalent or consent of instructor. Same as 039:170.

032:192 Traditions of Religious Reform
Same as 016:192.

032:195 Individual Study: Undergraduates
arr.
032:196 Senior Majors Seminar
Issues central to academic study of religion. 3 s.h.

032:197 Honors Tutorial
2-3 s.h.

032:198 Honors Essay
2-4 s.h.

032:201 Teaching Religious Studies
Teaching methods, course development, examination construction. 3 s.h.

032:202 Asian Religious Traditions
3 s.h.

032:203 Western Religious Traditions
3 s.h.

032:205 Methods and Theories in the Study of Religion
Principal methods, theories in academic study of religion. 3 s.h.

032:208 Asian Religions Colloquium
3 s.h.

032:213 Seminar: American Religious Thought
Same as 016:275. arr.

032:214 Seminar: Puritanism
Same as 016:276. arr.

032:218 Seminar: Religion in America
Religious experience in America; topics. 3 s.h.

032:220 Seminar: Topics in Western Religious Thought
In-depth reading of original sources and modern scholarship on selected problems in the modern study of Western religious thought. 3 s.h.

032:222 Seminar in Historical Theology
3 s.h.

032:223 Seminar: Reformation Culture and Theology
Culture and theology of 16th-century Europe. Same as 016:223. arr.

032:224 Seminar: Contemporary Theology
Ricoeur's hermeneutics. arr.

032:225 Seminar in Religion and Politics
Issues at the intersection of religion and politics; may include comparative study of theological and philosophical approaches to politics, nature and purposes of law, ethics of war, human rights; topics vary. 3 s.h.

032:226 Seminar: Religious Ethics
3 s.h.

032:227 Nonprofit Organizational Effectiveness I

032:228 Nonprofit Organizational Effectiveness II
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 024:248, 028:258, 042:248, 06J:248, 091:322, 174:248. 3 s.h.

032:229 High Empire
Authors and topics from the first and second centuries C.E. Repeatable. Same as 20L:229. 3 s.h.
032:231 Seminar: Religion and Society 3 s.h.
032:235 Seminar: South Asian Religion 3 s.h.
Topics in South Asian religions. Same as 039:235.
032:237 Seminar: East Asian Religion 3 s.h.
Emphasis on China and/or Japan. Same as 039:237.
032:240 Seminar: Religion and Law 3-4 s.h.
The role of law in ongoing conflicts over the relationship between religion, morality, and society in the United States. Same as 091:685.
032:243 Religion and the Arts 3 s.h.
Repeatable.
032:261 Readings in American Religions arr.
032:262 Readings in History of Christianity arr.
Repeatable.
032:263 Readings in Theology and Religious Thought arr.
Repeatable.
032:264 Readings in Religious Ethics arr.
Repeatable.
032:265 Readings in Asian Religions arr.
Repeatable.
032:266 Readings in Classical Arabic 3 s.h.
Repeatable.
032:267 Readings in Islamic Studies arr.
Current scholarship in the field of Islamic studies; major works in areas such as modern Islamic thought, Islamic legal and philosophical traditions, religion and politics.
032:290 Individual Study: Graduates arr.
Repeatable.
Repeatable.
The Department of Rhetoric offers courses that fulfill the College of Liberal Arts and Sciences General Education Program rhetoric requirement and provides individual instruction in its Writing Center and Speaking Center. It also offers other undergraduate courses and graduate seminars.

Students interested in continued study of rhetoric once they have fulfilled the rhetoric requirement of the General Education Program may enroll in upper-division rhetoric courses. Many of these are cross-referenced with other University departments and may count toward certain undergraduate majors.

Graduate students in many disciplines, including American studies, anthropology, communication studies, comparative literature, classics, English, history, journalism, political science, and others, may find rhetoric courses valuable to their programs of study.

**General Education Courses**

General Education courses in rhetoric help students

- use writing and speaking to discover and explain, question and justify positions in a controversy;
- use reading and listening to comprehend and consider arguments, both as separate constructs and in conversation with one another;
- understand basic rhetorical concepts such as purpose and audience and use them in composing effective spoken and written communication;
- understand and use research as responsible inquiry.

Rhetoric courses approved for General Education are sometimes organized around a special topic, but the primary emphasis is always on rhetorical practice and analysis. Some sections also involve special activities, such as service-learning components, but the workload across all sections is comparable, with a fixed number of major assignments and a departmentally approved set of readings.

All undergraduates—including transfer students—must fulfill the rhetoric requirement of the General Education Program in one of the following ways:

- pass 010:001 Rhetoric I and 010:002 Rhetoric II (total of 8 s.h.)*;
- pass 010:003 Accelerated Rhetoric (4 s.h.);
- earn credit through a score of 4 or 5 on the AP English Language exam and pass 010:003 Accelerated Rhetoric (4 s.h.);
- transfer 3 s.h. of credit in an expository writing course and pass 010:003 Accelerated Rhetoric (4 s.h.);
- transfer 3 s.h. of credit in a public speaking course and pass 010:003 Accelerated Rhetoric (4 s.h.);
- transfer 3 s.h. of credit in an expository writing course and 3 s.h. of credit in a public speaking course and pass 010:004 Writing and Reading (3 s.h.);
- or transfer 6 s.h. of credit in two expository writing courses and pass 010:006 Speaking and Reading (3 s.h.).

* Note: Beginning fall semester 2010, the rhetoric requirement will change. All entering students will be required to satisfactorily complete 010:003 Accelerated Rhetoric (4 s.h.); 010:001 Rhetoric I and 010:002 Rhetoric II (total of 8 s.h.) will no longer be available for new students. Students planning to transfer to The University of Iowa should discuss course equivalencies with an advisor or with the University's Office of Admissions before enrolling in a writing or composition course at another institution.

During their first year at the University, students should enroll in the rhetoric course indicated on their degree evaluations (unless a delay is required). Students must enroll in a rhetoric course during their first year and each semester thereafter until the requirement has been satisfied.

Placement is ordinarily determined by scores on the ACT, SAT, or Advanced Placement English Language Exam, and by any available transfer credit. Students who question their placement should bring their degree evaluations and their ACT or SAT scores to the Department of Rhetoric office during registration.

Students required to enroll in English as a Second Language (ESL) courses as a result of their English proficiency
evaluation must complete all ESL courses before they may register for any rhetoric course. Required ESL courses are prerequisites to rhetoric courses.

Students who have undergone formal evaluation by Student Disability Services and are found to be learning disabled in reading, writing, or speaking should request reasonable accommodations in order to complete rhetoric. Accommodations may be arranged by Student Disability Services in consultation with the Department of Rhetoric and individual instructors.

Satisfactory completion of rhetoric is a prerequisite for the General Education Program course 08G:001 The Interpretation of Literature.

**Rhetoric Courses**

**For Undergraduates**

**General Education**

**010:001 Rhetoric I**
4 s.h.
First semester of a two-course sequence combining writing, speaking, and reading; emphasis on rhetorical analysis and understanding rhetorical acts in their social contexts; argument and persuasion, research, shaping discourse for readers and listeners. GE: Rhetoric Level I.

**010:002 Rhetoric II**
4 s.h.
Second of a two-course sequence begun in 010:001. GE: Rhetoric - Speech, Rhetoric Level II.

**010:003 Accelerated Rhetoric**
4 s.h.
Combines 010:001 and 010:002 into one semester. Placement based on ACT or AP scores. GE: Rhetoric - Speech, Rhetoric Level II.

**010:004 Writing and Reading**
3 s.h.
Writing portion of the accelerated course 010:003; introductory course in writing required of students who have completed a college-level public speaking course and writing course but have not satisfied the 8 s.h. rhetoric requirement. Prerequisite: completion of speaking requirement. GE: Rhetoric Level II.

**010:006 Speaking and Reading**
3 s.h.
Speaking portion of the accelerated course 010:003; introductory course in speaking required of students who have completed 6 s.h. of college writing instruction but have not completed a 3 s.h. college-level speaking course; intended to improve speaking, listening, critical, analytical, and advocacy skills. Prerequisite: completion of writing requirement. GE: Rhetoric - Speech.

**Other Courses**

**010:010 Writing for Academic Success**
0 s.h.
Individualized instruction in the Writing Center; in conjunction with General Education rhetoric courses. Prerequisite: consent of Writing Center director.

**010:020 Academic Seminar I**
3 s.h.
iowaLink seminar. Prerequisite: first-year standing.

**010:021 Academic Seminar II**
3 s.h.
iowaLink seminar. Prerequisite: first-year standing.

**010:029 First-Year Seminar**
1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

**010:030 Rhetorical Process**
3 s.h.
Examination of the variety of ways through which people seek to influence one another; development of practical skills that can be relied on in everyday experiences; development of theoretical concepts for more advanced courses in communication studies. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: 2.60 cumulative g.p.a. and 30 s.h. earned. Same as 036:030.

For Undergraduate and Graduate Students

010:128 Racial Narrative and American Performance
3 s.h.
Same as 048:128, 129:128.

010:130 Performing Culture, Language, and Literature
3 s.h.
Performance of self in everyday life; performance in/of literature; performance as an aesthetic act; performance as a way to understand and represent identities, languages and cultures; students participate in performance as a mode of literary and rhetorical interpretation, cultural and political intervention, and artistic-embodied public presentation. Prerequisites: satisfactory completion of rhetoric and General Education literature requirements. Prerequisites: (for 036:130) 2.60 cumulative g.p.a., 036:001, a theory course (036:070 - 036:076), a research and criticism course (036:060 - 036:068), and a context course (036:040 - 036:042). Same as 036:130, 049:160, 160:130.

010:131 Classical Rhetoric and Greek Culture
3 s.h.
Origins, development of the art of rhetoric from Sophists to Aristotle; significance to Greek culture from fifth to fourth century B.C. Communication studies majors may apply this course to the following area requirement. AREA: Context. Same as 036:143.

010:132 African American Literary/Rhetorical Criticism I
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:160, 129:130.

010:133 African American Literary/Rhetorical Criticism II
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: 008:160 or 010:132 or 129:130. Same as 008:166, 129:131, 160:162.

010:141 Rhetoric and Past Public Controversy
3 s.h.
Role of rhetoric in public controversy in particular historical time periods; focus on various perspectives, diverse voices, and multiple arguments informing particular movements/issues. Communication studies majors may apply this course to the following area requirement. AREA: Context. Same as 036:158.

010:160 Issues in Rhetoric and Culture
3 s.h.
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: (for 036:146) 2.60 cumulative g.p.a., 036:001, and completion of research and criticism and theory requirements. Same as 008:181, 036:146, 048:160, 160:160.

010:161 Rhetorical Issues in Health Care
3 s.h.
Role of rhetoric in health care practice, decisions, and ethics; rhetorical production of patient and professional selves in health care; varied practices, diverse perspectives, and situated production of medical and health care knowledge. Prerequisite: satisfactory completion of rhetoric general education requirement. Same as 153:161, 160:161.

010:170 Rhetoric of Sustainability
3 s.h.
How sustainable development and related concepts have been used to shape public opinion on a range of topics, from environmental protection to economic globalization; role in discourse of public policy. Prerequisite: fulfillment of rhetoric requirement.

010:198 Special Projects for Undergraduates
arr.

For Graduate Students
010:230 Rhetorical Criticism
Approaches to rhetorical analysis of communicative artifacts, acts, events; rhetorical-critical essay writing. Same as 036:220.

3 s.h.

010:243 Feminist Cultural Studies

3 s.h.

010:264 Postcolonial Feminist Theory
Role of colonial histories and postcolonial legacies on past and contemporary relations of power in varied geographical contexts, through interdisciplinary feminist perspective; processes of gender and racialization relative to uneven global flows of media, capital, people. Prerequisite: 131:151 or cultural studies course. Same as 131:264, 160:280.

3 s.h.

010:275 Topics in Second Language Acquisition: Writing

3 s.h.

010:301 Classical Rhetoric

3 s.h.

010:332 Critical Ethnography
How power relations constitute the work of ethnographic research; ethnography as a rhetorical form--how ethnographic inscription renders self, other, culture, and the world intelligible in ways that reinscribe and/or challenge dominant social relations; axes of power such as race, class, gender, sexuality, and nation within postcolonial, feminist, and antiracist approaches to ethnographic/autoethnographic theory and praxis; negotiating researcher privilege and epistemic violence; crisis of representation. Same as 036:378, 160:332.

3 s.h.

010:340 Current Issues in Rhetoric
Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as 008:315, 036:317, 160:340.

3 s.h.

010:350 Colloquium: Teaching Rhetoric

3 s.h.

010:360 Issues in Rhetoric and Culture
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Repeatable. Same as 008:263, 160:360.

3 s.h.

010:375 Teaching in a Writing Center
Seminar/practicum to prepare graduate students to teach in the University of Iowa Writing Center or similar settings; seminar component on writing and reading processes, tutoring strategies, English-as-a-second-language issues; practicum experience tutoring in the Writing Center. Same as 08N:375.

3 s.h.

010:550 Special Project for Graduate Students

arr.

010:600 Seminar in Rhetorical Theory
Topics in history and development of rhetorical theory; theory construction and application to critical practice. Same as 036:336.

1-4 s.h.
The Science Education Program provides preparation in more than one discipline of science; a consideration of science from a philosophical, historical, and sociological perspective; an introduction to applied science (technology); and an education sequence.

Program planning in science education requires the cooperation and involvement of a variety of University departments and colleges. Most of the program's requirements are drawn from courses offered by these varied academic units.

Undergraduate Program

The program offers a Bachelor of Science in science education. The transdisciplinary major in science is intended for students interested in education.

The science education major is not intended to prepare students for advanced study in one area of science. When graduates of the Science Education Program elect to pursue graduate studies in a single area of science, they often must complete additional courses in that discipline after they are admitted to the Graduate College.

All of the emphasis areas in science education have the following characteristics in common.

- Depth in a general area of science equivalent to three years or six semesters of sequential study
- Preparation in a second area of science equivalent to two years or four semesters of sequential study
- Introduction to two other fields of science
- A specified proficiency in mathematics as a tool of science (with more mathematics study required for the physical science emphases than for the biological ones)
- A view of science from a historical/philosophical/cultural perspective
- Experience with the application of scientific knowledge

Special Rules

Since the Science Education Program may involve many faculty advisors and several colleges and departments, some special rules and regulations apply to science education students. They include the following.

- At least 10 s.h. of graded credit in science must be earned at The University of Iowa.
- No credit from the CLEP Natural Science General Examination may be used toward the major in science education.
- Courses used for the major may not be taken pass/nonpass; grades from all courses used for the science education major are used in computing a student's grade-point average in the major, both at The University of Iowa and overall.
- Since mathematics forms an integral part of so many aspects of modern science, all science education students are urged to complete appropriate advanced courses in both pure and applied mathematics (including statistics and computer science) so that they may be qualified to do graduate work and quantitative research later.

Bachelor of Science

Requirements for the major in science education have changed. Students who entered the college after summer 2008 or who declared or entered the major on or after the first day of fall semester 2008 must fulfill the new requirements below. Students who declared or entered the major before the first day of fall semester 2008 may choose to complete the old requirements (see previous editions of the Catalog), but they must complete all requirements and graduate by August 2012.

The Bachelor of Science in science education requires a minimum of 120 s.h., including 57-61 s.h. of work for the major. Students choose one of four primary emphasis areas: biological sciences, earth science, chemistry, and physics. They take selected courses offered by science departments in the College of Liberal Arts and Sciences, science applications courses, and courses in the history, philosophy, and sociology of science. Students also must complete the College of Liberal Arts and Sciences General Education Program.

The major in science education requires 24-28 s.h. in a primary emphasis area (amount of credit depends on the area chosen), 15 s.h. in a secondary emphasis area (may include a science applications course), the broad science field
Students who wish to be certified to teach science must complete the 44 s.h. professional education sequence; see "B.S. with Teacher Licensure" later in this section.

**BIOLOGY EMPHASIS AREA**

Primary emphasis area total of 28 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:010-002:011</td>
<td>Principles of Biology I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>002:081</td>
<td>Human Genetics in the Twenty-First Century</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:100</td>
<td>Plant Diversity and Evolution</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>099:110</td>
<td>Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>097:103</td>
<td>Societal and Educational Applications of Biological Sciences</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:134</td>
<td>Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:148</td>
<td>Field Ecology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:124</td>
<td>Animal Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>027:130</td>
<td>Human Physiology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**CHEMISTRY EMPHASIS AREA**

Primary emphasis area total of 25 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011-004:012</td>
<td>Principles of Chemistry I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>004:121</td>
<td>Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>004:122</td>
<td>Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>004:125</td>
<td>Inorganic Chemistry (spring)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>004:141</td>
<td>Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>097:106</td>
<td>Societal and Educational Applications of Chemical Concepts</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:111</td>
<td>Analytical Chemistry I (fall)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>004:131</td>
<td>Physical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>009:110</td>
<td>Biochemistry (spring)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**EARTH SCIENCE EMPHASIS AREA**

Primary emphasis area total of 27 s.h.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>012:004</td>
<td>Evolution and the History of Life</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>012:005</td>
<td>Introduction to Geology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>012:008</td>
<td>Introduction to Environmental Science</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>012:041</td>
<td>Mineralogy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>012:108</td>
<td>Introduction to Oceanography</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>012:114</td>
<td>Energy and the Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>097:102</td>
<td>Societal and Educational Applications of Earth Science and Environmental Science</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:
PHYSICS EMPHASIS AREA

Primary emphasis area total of 24-27 s.h.

One of these sequences:

- 029:011-029:012 College Physics I-II (if physics is a secondary emphasis area) 8 s.h.
- 029:027-029:028 Physics I-II 8 s.h.
- 029:081-029:082 Introductory Physics I-II 8 s.h.

One of these:

- 029:029 Physics III 4 s.h.
- 029:115 Intermediate Mechanics 3 s.h.

One of these:

- 029:050 Stars, Galaxies, and the Universe (if physics is a secondary emphasis area) 3-4 s.h.
- 029:052 Exploration of the Solar System (if physics is a secondary emphasis area) 3 s.h.
- 029:061 General Astronomy I 4 s.h.

One of these:

- 029:128 Electronics 4 s.h.
- 029:129 Electricity and Magnetism I 3 s.h.

One of these:

- 029:006 Physics of Everyday Experience (if physics is a secondary emphasis area) 3 s.h.
- 029:044 Physics of Sound 3-4 s.h.
- 097:105 Societal and Educational Applications of Physical Sciences 3 s.h.

BROAD FIELD SCIENCE BLOCK

- 097:102 Societal and Educational Applications of Earth Science and Environmental Science 3 s.h.
- 097:103 Societal and Educational Applications of Biological Sciences 3 s.h.
- 097:105 Societal and Educational Applications of Physical Sciences 3 s.h.
- 097:106 Societal and Educational Applications of Chemical Concepts 3 s.h.
- 097:128 Meaning of Science 2 s.h.
- 097:130 Science in Historical Perspective 2 s.h.

B.S. with Teacher Licensure

Candidates for a bachelor's degree in science education may, but are not required to, be admitted to the Teacher Education Program (TEP) in the College of Education. In order to be considered for admission to the TEP, students must have completed a minimum of 40 s.h. of science course work with a cumulative g.p.a. of at least 2.70. A limited number of applicants are accepted to the TEP, so having the required grade-point average does not ensure admission. Admission decisions are based on grade-point averages in science courses and other criteria relevant to teaching.

For procedures and deadlines for TEP applications, see Teaching and Learning (College of Education) in the Catalog. Interested students must apply to the College of Education for admission to the Teacher Education Program.

TEP students must complete the College of Liberal Arts and Sciences General Education Program, the requirements for a science education major, and the following professional education courses, which total 44 s.h.
07B:180 Human Relations for the Classroom Teacher 3 s.h.
07P:075 Educational Psychology and Measurement 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:102/07E:102 Technology in the Classroom 2 s.h.
07S:151 Science Teaching and Practice with Early Learners 3 s.h.
07S:152 Methods of Teaching Science 3 s.h.
07S:153 Instructional Issues in Teaching Science (taken with 07S:179) 3 s.h.
07S:171 Secondary Classroom Management 2 s.h.
07S:179 Secondary School Science Practicum (taken with 07S:153) 2 s.h.
07S:190 Orientation to Secondary Education 1 s.h.
07S:195 Teaching Reading in Secondary Content Areas 1 s.h.
07U:100 Foundations of Special Education 3 s.h.

These three taken concurrently:

07S:187 Seminar: Curriculum and Student Teaching (section 91) 3 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.

One college-level math course (excluding 22M:001 Basic Algebra I, 22M:002 Basic Algebra II, and 22M:003 Basic Geometry) also is required.

**Four-Year Graduation Plan**

The Four-Year Graduation Plan is not available to students majoring in science education.

**Honors**

To graduate with honors, students must maintain a University of Iowa g.p.a. of at least 3.33, in addition to other science education requirements. Contact the University of Iowa Honors Program for more information.

**Graduate Programs**

The Science Education Program offers graduate studies leading to the Master of Arts in Teaching, Master of Science, and Doctor of Philosophy. For information about science education graduate programs, see Teaching and Learning (College of Education) in the Catalog. The M.A.T., M.S., and Ph.D. are described under "Secondary Education."

**Research**

Each faculty member in science education is responsible for one or more areas of research. Major interests include studies of effective teaching and learning, science through writing, philosophy and sociology of science, individualized learning, social issues in science and technology, curriculum planning and development, professional development, intellectual development related to teaching and learning science, studies of effective use of hands-on activities, and evaluation and assessment of science instruction and programs.

**Programs and Projects**

A wide range of funded programs provides ample opportunity for students to be involved in innovative development and research in science education.

Science education faculty members collaborate on a number of international research projects in many countries. Activities include faculty exchanges and cross-national studies.

International students enrich the opportunities for graduate studies in Science Education. New international collaborative efforts are under way each year.

**Science Education Courses**

097:102 Societal and Educational Applications of Earth Science and Environmental Science arr.
Major ideas and principles of earth and environmental sciences; emphasis on common applications in today's world.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>097:103</td>
<td>Societal and Educational Applications of Biological Sciences</td>
<td></td>
<td>Basic conceptual themes of biology, how they have been derived; emphasis on a current social issue related to biology.</td>
</tr>
<tr>
<td>097:105</td>
<td>Societal and Educational Applications of Physical Sciences</td>
<td></td>
<td>Major ideas of physics and how they have been derived; emphasis on how such ideas affect modern society.</td>
</tr>
<tr>
<td>097:106</td>
<td>Societal and Educational Applications of Chemical Concepts</td>
<td></td>
<td>Principles of chemistry as applied in industry, communication, daily living.</td>
</tr>
<tr>
<td>097:107</td>
<td>Textile Science</td>
<td>3 s.h.</td>
<td>Same as 049:142.</td>
</tr>
<tr>
<td>097:115</td>
<td>Introduction to Museology</td>
<td>3 s.h.</td>
<td>Overview of museum history, function, philosophy, collection and curatorial practices, governance and funding issues, exhibition evaluation, audience studies; American cultural institutions. GE: Humanities. Same as 024:102, 07S:112, 113:103.</td>
</tr>
<tr>
<td>097:119</td>
<td>Directed Study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>097:128</td>
<td>Meaning of Science</td>
<td>2-3 s.h.</td>
<td>Scientific enterprise from social, ethical, cultural, epistemological viewpoints.</td>
</tr>
<tr>
<td>097:130</td>
<td>Science in Historical Perspective</td>
<td>2-3 s.h.</td>
<td>Science and its related contemporary social issues from historical development perspective.</td>
</tr>
<tr>
<td>097:140</td>
<td>Problems in Integrating the Teaching of Environmental Science</td>
<td>2-3 s.h.</td>
<td>Environmental education resources in the community--human, governmental, natural; environmental education in K-12 teaching.</td>
</tr>
</tbody>
</table>
Sexuality Studies

Chair: Jennifer Glass
Coordinator: Leslie Schwalm
Undergraduate nondegree program: Certificate in Sexuality Studies
Web site: http://www.uiowa.edu/~women/index2.html

The Sexuality Studies Program focuses on the history and construction of human sexualities and gender identities. The interdisciplinary program is multicultural and international in scope. It encompasses many areas of investigation, such as anthropology, art, health care, law, literature, popular culture, psychology, sociology, and theatre.

The program offers the undergraduate Certificate in Sexuality Studies.

Certificate

The Certificate in Sexuality Studies requires 21 s.h. of course work. Students who complete the program gain a better understanding of human sexuality. They also acquire valuable background knowledge applicable to a wide variety of humanities and social science fields and to careers in education, counseling, law, medicine, nursing, and other health professions.

Students may declare their intention to complete the certificate at the CLAS Academic Programs & Services office.

Students plan their programs in close cooperation with sexuality studies advisors, choosing course work from the list of required and elective courses approved for the certificate. Students must maintain a g.p.a. of at least 2.00 in course work for the certificate.

All students complete the following two courses.

154:010 Introduction to Gender, Women's, and Sexuality Studies 3 s.h.
Capstone seminar 3 s.h.

Students who began the certificate program before fall 2009 may substitute 154:110 Frameworks for the Study of Sexuality (formerly Introduction to Sexuality Studies) for 154:010 Introduction to Gender, Women's, and Sexuality Studies.

The capstone seminar changes from year to year and typically is offered only in spring semester. Each year's capstone seminar is announced on the Sexuality Studies Program web site before spring preregistration. Contact the sexuality studies advisor for information about the course. The capstone for spring semester 2010 is 154:157 Gender, Sexuality, and Human Rights.

The remaining 15 s.h. of credit is earned in courses chosen from those offered by the Sexuality Studies Program or from the list of approved associated courses, which varies from year to year. Students may petition to include a course that is not on the list of approved courses; they should discuss this option with their advisors. In keeping with the interdisciplinary nature of sexuality studies, students are encouraged to choose these electives from different disciplines.

Courses applied toward the sexuality studies certificate also may be used to complete the College of Liberal Arts and Sciences General Education Program or to satisfy requirements of a major or minor.

Of the 21 s.h. required for the certificate, at least 12 s.h. must be earned at The University of Iowa. Transfer work is evaluated by the program coordinator.

The certificate is awarded upon completion of a bachelor's degree. Holders of Iowa bachelor's degrees also may return to complete the requirements for a certificate. Holders of baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program at The University of Iowa may apply for admission to the College of Liberal Arts and Sciences and are awarded the certificate upon completion of the requirements.

Associated Courses

The following courses are approved for the Certificate in Sexuality Studies. Additional courses may be approved. Students should discuss course selection with their advisors.

AMERICAN STUDIES

045:060/008:050/154:060 Sex and Popular Culture in the Postwar U.S. 3 s.h.
<table>
<thead>
<tr>
<th>Department</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTHROPOLOGY</td>
<td>113:127 South Asian Sexual Cultures</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>113:140 Politics of Reproduction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>ART AND ART HISTORY</td>
<td>01H:199 Topics in Art History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CLASSICS</td>
<td>20E:150/131:152/154:121 Gender and Sexuality in the Ancient World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>COMMUNICATION STUDIES</td>
<td>036:075 Gender, Sexuality, and Media</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>036:095 Queer Rhetorics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>07C:130 Human Sexuality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>ENGLISH</td>
<td>08G:011 Literature and Sexualities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>008:050/045:060/154:060 Sex and Popular Culture in the Postwar U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>008:179 Literature and Society (when content is appropriate)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>FRENCH AND ITALIAN</td>
<td>009:148 Gender and Sexuality in French Cinema</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HEALTH AND SPORT STUDIES</td>
<td>028:078 Women, Sport, and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HISTORY</td>
<td>16A:154 Sexuality in the United States</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>16A:184 Black Global Metropolis: Sexual History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>LITERATURE, SCIENCE, AND THE ARTS</td>
<td>033:075 Cultural Diversity and Identity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>NURSING</td>
<td>096:112/042:112 Human Sexuality, Diversity, and Society</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
RELIGIOUS STUDIES

032:052 Women in Islam and the Middle East  3 s.h.
032:071 Sexual Ethics  3 s.h.

SOCIAL WORK

042:112/096:112 Human Sexuality, Diversity, and Society  3 s.h.
042:199 Selected Aspects of Social Work and Social Welfare (when topic is social work practice with gays, lesbians, bisexuals)  arr.

SOCIOLOGY

034:061 The American Family  3 s.h.
034:135/154:145 Sociology of Sexuality  3 s.h.

SPANISH AND PORTUGUESE

035:193 Sexualities in Hispanic Cultures  3 s.h.

THEATRE ARTS

049:118 American Women Playwrights: 1776-Present  3 s.h.

Sexuality Studies Courses

154:010 Introduction to Gender, Women's, and Sexuality Studies  3 s.h.
Introduction to feminist interdisciplinary study of women's lives, with emphasis on race, class, sexual orientation; work, family, culture, political and social change. GE: Cultural Diversity. Same as 131:010.

154:060 Sex and Popular Culture in the Postwar U.S.  3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. GE: Cultural Diversity. Same as 008:050, 045:060, 131:061.

154:069 Topics in Sexuality Studies  1-3 s.h.
Focus on a specific aspect of human sexuality; topics vary.

154:071 Sexual Ethics  3 s.h.
Christian, Jewish, secular perspectives on meaning and value of human sexuality; contemporary sexual ethical issues. Same as 032:071.

154:075 Fertility and Reproduction  3 s.h.
Exploration of when, why, how, and with whom Americans bear children, comparison to other developed and developing countries in the world; infertility and its treatments; ethics of surrogacy; voluntary childlessness; rapid rise of nonmarital childbearing in the U.S. and other countries; politics of childbirth; declining populations; rapid aging of rich where women have basically stopped having children. Same as 034:075, 131:075.

154:095 Queer Rhetorics  3 s.h.
Queer theory: overview; use in communication venues such as television and film, and in everyday life; development of critical thinking skills in relation to cultural constructions of gender, sexuality, race, and other identity categories. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisite: 036:001. Same as 036:095, 131:095.

154:110 Frameworks for the Study of Sexuality 3 s.h.
Theoretical perspectives on human sexualities drawn from medicine, law, social sciences, the humanities; cultural meanings of heterosexual, lesbian, gay, bisexual, transgender identities.

154:119 Writing for Interdisciplinary Audiences 3 s.h.
English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 024:119, 08N:119, 153:119.

154:120 Lesbian, Gay, Bisexual, and Transgender Identities 3 s.h.
Historical and contemporary experiences of sexual minorities; identity, community, culture, art, politics, representation, diversity, assimilation.

154:121 Gender and Sexuality in the Ancient World 3 s.h.
Survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome; evidence from literature, the visual arts, archaeology. Prerequisites: completion of rhetoric requirement and sophomore standing. GE: Foreign Civilization & Culture. Same as 131:152, 20E:150.

154:130 Diverse Sexual Communities 3 s.h.
Intersections of sexual identities with race, class, gender, age, religion, other personal identities associated with experiences of oppression, resistance.

154:145 Sociology of Sexuality 3 s.h.
Sociological perspectives on sexuality, including theoretical and conceptual developments, empirical regularities, and social implications; sexual expression in the United States. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 034:135.

154:157 Gender, Sexuality, and Human Rights 3 s.h.
History of gender and sexuality as components in international human rights activism and law; current debates, representative topics. Same as 131:157, 16W:157.

154:180 Seminar in Sexuality Studies 3 s.h.
Skill development in developing, presenting, discussing research on current topics in the field. Prerequisites: 154:110 and two additional 154-prefix courses, or consent of instructor.

154:182 Anthropology of Sexual Minorities 3 s.h.
Ethnographic studies of sexual minorities and anthropological approaches to lesbian, gay, bisexual, and transgendered persons and communities; behavior, identity, performativity, kinship, globalization, the HIV/AIDS pandemic. Prerequisite: junior, senior, or graduate standing; or consent of instructor. Same as 113:154, 131:154.

154:184 Black Global Metropolis: Sexual History 3 s.h.
Dispersion of people of African descent into the global metropolis, from expansion of port cities in the slave trade to industrialization of European and American cities, decolonization of the Third World, and proliferation of spatial cultures in contemporary geography; readings cover prostitution in colonial New York, sexual danger in Victorian London, jazz age Chicago, sexual psyches in Algiers, black gay expatriates in Paris, social science in Harlem and Puerto Rico ghettos, black/white sex in Johannesburg, transsexuals in Rio de Janeiro, Black Panther sexual politics in urban America, global hip-hop sexualities. Same as 129:184, 16A:184.

154:185 Sexualities in Hispanic Cultures 3 s.h.
Historical, social, and theoretical concepts of sexuality in Spanish, Spanish American, and U.S. Latino/a cultures; constructions of gender and sexual identity. Taught in English. Prerequisite: 154:110 or consent of instructor. Same as 035:193.

154:192 Culturally Diverse Theatre 3 s.h.
Same as 049:192, 131:192.
154:199 Independent Study
Directed readings, artistic or creative endeavors, research projects. Prerequisite: 154:110.
The School of Social Work builds knowledge about social welfare issues, policies, and practice interventions and integrates that knowledge into teaching and public service. It promotes the application of theories and practice approaches to development, implementation, and evaluation of social welfare policy and practice with vulnerable populations, especially children and the elderly.

Using family-centered and community-based practice approaches, the school prepares culturally competent social work scholars and practitioners with a commitment to social justice and social work values and ethics.

The school provides a program of professional training accredited by the Council on Social Work Education at the baccalaureate and master's levels, aimed at developing effective intervention in multiple systems and using professional social work values and ethics. It also offers a Ph.D. program, which prepares students to conduct research that contributes to the knowledge base of social work, to be leaders in setting policy and practice, and to teach in colleges and universities.

Undergraduate Programs

The school offers a Bachelor of Arts and a minor in social work. The B.A. program prepares students for beginning professional social work practice as culturally competent generalist practitioners. The goals of the program are to prepare students for employment in public and private social services in home and community-based settings through the integration and application of core competencies; to prepare students for informed community participation in social welfare issues, with particular sensitivity to ethics and values, diverse populations, and social and economic justice; and to provide a base for graduate study in social work or allied fields. Social work students are challenged to excel academically, think analytically, and apply theory to practice.

The undergraduate program in social work has been accredited continuously by the Council on Social Work Education since 1974.

The school also administers the undergraduate Certificate in Critical Cultural Competence; see Critical Cultural Competence in the Catalog.

Selective Admission

The School of Social Work seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives.

A limited number of students are admitted to the major each year. The application deadline is March 1. Admission to the undergraduate program in social work requires:

- completion of 042:022 Introduction to Social Work with a grade of C or higher (should be taken the sophomore year);
- a cumulative g.p.a. of at least 2.50 (exceptions may be made for persons who do not meet the grade-point average requirement if they are strong candidates on the basis of other criteria); and
- completion of application forms and statement.

Meeting these requirements does not guarantee admission. Admission often is limited by available instructional resources and opportunities for field placement. The school does not grant academic credit for life experience or previous work experience.

For more information about admission policies, contact the School of Social Work undergraduate director or admissions coordinator.
Bachelor of Arts

The Bachelor of Arts in social work requires a minimum of 120 s.h., including at least 64-66 s.h. of work for the major (a minimum of 36 s.h. in social work courses, 16-18 s.h. in cognate areas, and 12 s.h. in a concentration area).

Students must complete 042:022 Introduction to Social Work (4 s.h.) before enrolling in the remaining social work courses required for the major.

Students must complete the College of Liberal Arts and Sciences General Education Program. Many students complete the required course 002:021 Human Biology as part of the General Education Program.

Requirements for the major in social work are as follows.

002:021 Human Biology 4 s.h.
Social work courses, beginning with 042:022 Introduction to Social Work and culminating in a field experience 36 s.h.
Concentration area courses; see "Concentration Area" below 12 s.h.

Social science courses (9-10 s.h.):

030:001 Introduction to American Politics 3 s.h.
031:001 Elementary Psychology 3 s.h.
034:001 Introduction to Sociology Principles 3-4 s.h.

One of these social science or quantitative studies elective courses (3-4 s.h.):

06E:001 Principles of Microeconomics 4 s.h.
06E:002 Principles of Macroeconomics 4 s.h.
22S:002 Statistics and Society 3 s.h.
22S:025 Elementary Statistics and Inference 3 s.h.
113:003 Introduction to the Study of Culture and Society 3 s.h.
113:010 Anthropology and Contemporary World Problems 3 s.h.

CONCENTRATION AREA

The undergraduate program requires a minimum of 12 s.h. of course work in one of the concentration areas listed below. Most students choose either sociology or psychology as their concentration. Students who wish to meet this requirement in an area not listed must present a written request and rationale to the faculty advisor and undergraduate coordinator. Courses used to complete the General Education Program do not count toward the 12 s.h., nor do courses used to satisfy other requirements of the B.A. in social work.

African American studies
Aging studies
Anthropology
Business
Communication studies
Economics
Education
English
Health and sport studies
History
Journalism and mass communication
Leisure studies
Political science
Psychology
Religious studies
Sociology
Spanish
Women's studies

Recommended Course Sequence

The school recommends that required course work be taken in the following sequence. Most social work courses are offered only once each year.
FIRST AND SECOND YEARS

002:021 Human Biology 4 s.h.
030:001 Introduction to American Politics 3 s.h.
031:001 Elementary Psychology 3 s.h.
034:001 Introduction to Sociology Principles 3-4 s.h.
042:022 Introduction to Social Work 4 s.h.
One social science or quantitative elective course 3-4 s.h.

THIRD YEAR

042:140 Human Behavior in the Social Environment 4 s.h.
042:144 Introduction to Social Work Research 4 s.h.
042:147 Discrimination, Oppression, and Diversity 3 s.h.
042:171 Social Work Processes 4 s.h.

FOURTH YEAR

042:141 Fundamentals of Social Work Practice 3 s.h.
042:142 Interpersonal Skills Laboratory 2 s.h.
042:143 Social Welfare Policy and Practice 3 s.h.
042:189 Field Experience Seminar 1 s.h.
042:193 Field Experience 8-11 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University’s Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Admission to the major in social work is selective. The four-year graduation plan applies only to students who are admitted by the beginning of their fifth semester.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 042:022 Introduction to Social Work, four courses that can be applied to the major (may include concentration area courses), admission to the major, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: six more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: four or five more courses in the major and finalized field placement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

The School of Social Work has an honors program leading to a Bachelor of Arts with honors in social work. A cumulative University of Iowa g.p.a. of at least 3.33 is required for participation in the program, which enables students to do in-depth study in subjects that interest them.

Contact the University of Iowa Honors Program for more information on honors study at Iowa.

Minor

The minor in social work requires a minimum of 15 s.h in social work courses, including 12 s.h. in 100-level courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include 042:022 Introduction to Social Work (or for transfer students, an equivalent course from another institution). Contact the School of Social Work B.A. coordinator for more information.
Graduate Programs

The school offers the Master of Social Work and a Doctor of Philosophy in social work.

Licensure for Work in Iowa

Licensure is mandatory for master's-level social workers in Iowa. For more information, see the Iowa Department of Public Health web site.

Master of Social Work

The Master of Social Work requires 60 s.h. of graduate credit; the requirement is 48 s.h. for students who hold an undergraduate degree in social work from a program accredited by the Council on Social Work Education. Students may elect a thesis or a nonthesis option. A specialization in end-of-life care is available.

The M.S.W. program prepares culturally competent social work practitioners for leadership in the profession and for advanced social work practice in one of two concentrations: family-centered practice and integrated practice. The focus is on family systems and social change, both domestic and international. The program's concentrations of family-centered practice and integrated practice offer students the opportunity to build knowledge and skills for working with children, elders, families, small groups, organizations, and communities. Students develop competencies necessary for leadership in addressing unique social work challenges—for example, the high proportion of elders, recent immigrants to rural communities, and rural poverty in Iowa.

The school offers the M.S.W. program on the University's Iowa City campus and at three off-campus sites: Des Moines and Sioux City, Iowa, and the Quad Cities area of Iowa and Illinois (see "M.S.W. off Campus" later in this Catalog section). Each site provides the required structured sequence of courses and includes opportunities for students to individualize their plans of study. All sites give students access to the resources of a Research 1 University.

Requirements for the M.S.W. include 25 s.h. in foundation-level courses and 35 s.h. in advanced courses. All students must earn a minimum of 36 s.h. after admission to the M.S.W. program. Students may count a maximum of 9-12 s.h. of credit from previous graduate work toward the M.S.W.

The full-time, sequenced M.S.W. program can be completed in five semesters, beginning in fall and including summer session. Full-time students generally complete the degree in the spring semester of their second year. Students whose degree requirement is 48 s.h. may enroll full-time or part-time their first semester, following the sequenced plan.

Full-time study and a four-year part-time program are available in Iowa City and Des Moines. A three-year sequence of courses is available at all sites, although the Sioux City and Quad Cities sites admit new entering classes only on a three-year cycle. All students follow a structured sequence of courses. They must maintain a cumulative g.p.a. of at least 3.00 and must be promoted each semester in compliance with the school's student advancement policy.

Following is an outline of the full-time 60 s.h. program. For information about the three-year and four-year part-time sequences, contact the School of Social Work.

FIRST-YEAR FOUNDATION

Fall Semester

042:140 Human Behavior in the Social Environment 3 s.h.
042:143 Social Welfare Policy and Practice 3 s.h.
042:146 Computer Laboratory 1 s.h.
042:147 Discrimination, Oppression, and Diversity 3 s.h.
042:148 Social Work Research Methods 3 s.h.

Spring Semester

042:150 Social Work Practice with Individuals, Families, and Groups 3 s.h.
042:151 Social Work Practice Skills Laboratory 1 s.h.
042:145 Organization and Community Practice 3 s.h.
042:270 Advanced Research 3 s.h.
042:290 Foundation Practicum in Social Work 3 s.h.
042:291 Foundation Practicum Seminar 1 s.h.

Summer Session
Electives (including preplacement field practice courses)  

4-10 s.h.

SECOND-YEAR CONCENTRATION

Fall Semester

Elective  

3 s.h.

One of these:

042:250 Family-Centered Theory and Practice I  
042:260 Integrated Social Work Theory and Practice I

3 s.h.

One of these:

042:292 Advanced Practicum in Family-Centered Practice I and II  
042:295 Advanced Practicum in Integrated Practice

5-6 s.h.

One of these:

042:293 Advanced Practicum Seminar in Family-Centered Practice I  
042:297 Advanced Practicum Seminar in Integrated Practice I

1 s.h.

Spring Semester

One of these:

042:251 Family-Centered Theory and Practice II  
042:261 Integrated Social Work Theory and Practice II

3 s.h.

One of these:

042:252 Advanced Social Policy for Family Practice  
042:262 Advanced Social Policy for Integrated Practice

3 s.h.

One of these:

042:292 Advanced Practicum in Family-Centered Practice I and II  
042:295 Advanced Practicum in Integrated Practice

5-6 s.h.

One of these:

042:294 Advanced Practicum Seminar in Family-Centered Practice II  
042:298 Advanced Practicum Seminar in Integrated Practice II

1 s.h.

Concentrations

In the advanced year of the master's program, students choose one of two concentrations: family-centered practice or integrated practice. These advanced specialized curricula build on the school's liberal arts perspective and on the professional foundation. Both are based on a comprehensive eco-systemic theoretical perspective, and both apply the principles that are part of the school's mission statement, with a focus on culturally competent family-centered and community-based approaches.

FAMILY-CENTERED PRACTICE

The family-centered practice concentration teaches knowledge and skills necessary for advanced social work practice with individuals and families. These include clinical practice methods that mobilize and develop clients' coping skills, empowering them to manage difficult situations, and culturally sensitive methods for collaborating with clients, their families, and other professionals in planning interventions. Students also learn about advocating for clients, facilitating client self-advocacy, coordinating services to meet multiple needs, and influencing social policy on behalf of clients.
The concentration prepares students to work with individuals and families at appropriate levels of intensity, mobilize existing strengths, and enhance coping skills. Using principles of family-centered practice, students learn to take community and larger systems into account while working in partnership with individuals and families in all aspects of assessment and intervention planning. The concentration emphasizes sensitivity to a variety of family forms and to cultural diversity within family forms. "Family" is broadly defined to include step families, single-parent families, same-sex-couple families, grandparent-as-parent families, adult parent-adult child families, and traditional forms of families.

INTEGRATED PRACTICE

The integrated practice concentration teaches methods of advanced practice that empower organizational and community change at multiple system levels. Students learn skills for assessment, planning, and direct intervention in larger systems such as neighborhoods, social support networks, and service delivery systems, and for policy making. They develop skills for a broad range of interventions, including direct practice, case management, community education, community development and practice, management and administration, organizational and interorganizational planning and program development, team building, organization and program evaluation, and social policy advocacy. They also learn culturally sensitive methods to collaborate with families and communities; identify strengths, assets, and challenges; and develop services and programs that will meet clients’ needs.

Building on strengths and assets of organizations and communities, students learn how to mobilize community members in advocacy and change efforts—skills useful for case managers, service coordinators, supervisors, program planners and developers, and administrators. Students also learn how to apply advanced skills to advocacy, community assessment, planning and mobilizing resources, and influencing social policy.

The concentration prepares students for practice in varied settings, including hospitals and community health programs, schools, mental health centers, neighborhood and family resource centers, community- and family-based community service agencies, correctional facilities, and programs that serve the elderly, both in the community and in care facilities. In many of these settings, social workers work as interdisciplinary team members and team leaders within organizations. They also collaborate with community organizations, community residents, and service providers. Many social workers are involved in staff supervision, program development, and agency administration. Content areas include grant writing; intervention in multiple systems, including team and network building; policy practice; and design of evaluation methods for client assessment and program evaluation.

Admission

The school seeks to maintain a heterogeneous student body by enrolling students who represent diverse backgrounds and cultural perspectives. Previous experience in human services and cross-cultural experiences is desirable. The school does not grant academic credit for life experience or previous work experience.

Admission to the M.S.W. program requires a bachelor's degree from an accredited college or university, with a reasonable distribution of courses in the liberal arts and sciences (the humanities and the social, behavioral, and biological sciences). Applicants should have an undergraduate g.p.a. of 3.00 or higher, or a g.p.a. of 3.00 or higher on 12 s.h. of letter-graded graduate course work; consult the Office of Admissions for help in calculating grade-point average. Competence with word processing and spreadsheet application on personal computers is required.

Applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applicants must submit three letters of recommendation, including one regarding academic abilities and one from the applicant's most recent employer (if the employment was social work-related); and a personal statement addressing criteria specified by the School of Social Work.

Applications are accepted beginning September 1 and must be completed by February 1 to be considered for the next academic year.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

For a complete statement of graduate admission policies, contact the School of Social Work.

Financial Support

Students seeking financial assistance should apply for aid through The University of Iowa Office of Student Financial Aid. Students may apply for a limited number of research and teaching assistantships available from the School of Social Work. Application materials for research or teaching assistantships are available from the school each spring, or as positions become available. Aid received through the Office of Student Financial Aid does not preclude students from consideration for aid through the School of Social Work.

M.S.W. off Campus
The School of Social Work delivers the M.S.W. curriculum to three off-campus sites: Des Moines and Sioux City, Iowa, and the Quad Cities area of Iowa and Illinois. Each site is administered by the School of Social Work in cooperation with the Division of Continuing Education. Social work faculty members teach required courses at each center and are available for student advising. The off-campus programs have been evaluated by the Council on Social Work Education and The University of Iowa Graduate Council as providing a program comparable to that available on the Iowa City campus.

Courses at each off-campus site are taught in classrooms by tenure-track, clinical, visiting, and adjunct faculty members. Instructional connections between sites are maintained through varied technologies, including computer-based instruction.

For program entry and application dates, contact the School of Social Work.

Des Moines Center

The Des Moines Education Center is located in the state’s largest metropolitan area, in central Iowa. It offers courses sequenced to accommodate both part-time and full-time study. Students may complete the entire degree program at the Des Moines center, although they may travel to Iowa City for selected elective courses offered during the summer.

Quad Cities Center

The Quad Cities Graduate Center (QCGC) is located on the campus of Augustana College in Rock Island, Illinois, on the Iowa-Illinois border. The center offers a part-time program for a cohort admitted once every three years. Students in the Quad Cities part-time program can complete their degree entirely off-campus with the exception of some electives, which they can take during summer sessions in Iowa City or at other area colleges and universities. In addition to the part-time cohort students, there are some full- or part-time students from Iowa City in practicum in the Quad Cities.

Sioux City Center

The Tri-State Graduate Study Center is located in Sioux City, on Iowa's western border. The Sioux City part-time program is nearly identical to the Quad Cities part-time program.

Joint M.S.W./Ph.D.

The school offers a joint Master of Social Work/Doctor of Philosophy in social work for students who have completed course work in research and statistics and have postbaccalaureate experience related to social work practice. The joint program permits students to apply a limited amount of credit toward both graduate degrees, reducing the time required to graduate. Individuals interested in the joint program must apply to the M.S.W. program and the Ph.D. program; applications are reviewed by the admissions panels of both programs. For more information, contact the School of Social Work.

Joint M.S.W./J.D., and M.S.W./M.A. or M.S. in Planning

The School of Social Work collaborates with the College of Law to offer the joint Juris Doctor/Master of Social Work. It also collaborates with the Urban and Regional Planning Program to offer the joint Master of Social Work/Master of Arts or Master of Science in planning. Each program permits students to apply up to 12 s.h. of graduate credit toward both degrees, reducing the time required to graduate. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. For more information, see Juris Doctor (College of Law) or Urban and Regional Planning (Graduate College) in the Catalog.

Similar arrangements may be made with other departments. Academic units in which social work students have pursued joint degrees include the Tippie College of Business, the College of Education, the Department of American Studies, the Department of Religious Studies, and the School of Journalism and Mass Communication. Students are encouraged to take courses in other departments whether or not they are pursuing joint degrees.

Certificate in Aging Studies

The School of Social Work participates in the Aging Studies Program (see Aging Studies in the Catalog). Students may earn the Certificate in Aging Studies concurrently with the M.S.W.; separate application to the Aging Studies Program is required.

School Social Work Endorsement

The school cooperates with the College of Education and the State Department of Education to provide curricula that meet requirements for school social work endorsement in Iowa.
Professional Association

Graduates of accredited M.S.W. programs may be eligible for associate membership in the American Association for Marriage and Family Therapy (AAMFT) upon fulfilling certain curriculum requirements at the graduate level. Courses are not automatically accepted; graduates need to demonstrate that specific courses meet the AAMFT’s requirements, usually by sending course outlines.

Doctor of Philosophy

The Doctor of Philosophy in social work requires a minimum of 86 s.h. of graduate credit. The program prepares students to conduct research that contributes to the knowledge base of social work, to become leaders in the profession, and to teach social work in postsecondary education institutions.

Doctoral students develop close working relationships with faculty members who have achieved national recognition in areas such as child welfare, diversity and cultural competence, gerontology, social policy, and substance abuse.

The Ph.D. offers students a coherent program of study with opportunities to pursue their own scholarly interests. Requirements include course work, research and teaching practicums, and dissertation work. Students take courses in one of three outside disciplines: sociology, psychology, or public health. This course work prepares them for the comprehensive examination and dissertation defense.

Students who enter the program with an M.S.W. are granted credit for 30 s.h. and must complete an additional 56 s.h. for the degree. Individuals with master's degrees in related disciplines (e.g., psychology, sociology) may choose to earn a Ph.D. in social work without first earning the M.S.W. Credit from a related master's degree may be applied to the Ph.D., as determined case-by-case by the School of Social Work.

To become Ph.D. candidates, students must satisfy the program’s course work requirements, pass a comprehensive examination, and write a dissertation and defend it in an oral examination.

Each student's program of study must be approved by his or her doctoral committee.

Course requirements for the Ph.D. in social work are as follows.

Foundation Courses

Doctoral students without the M.S.W. must take the following four foundation courses during their first year of study. Students may waive one or more of these courses if they can show that they have completed comparable courses and can pass an applicable exam.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>042:140</td>
<td>Human Behavior in the Social Environment</td>
<td>3, 4 s.h.</td>
</tr>
<tr>
<td>042:143</td>
<td>Social Welfare Policy and Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:147</td>
<td>Discrimination, Oppression, and Diversity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:148</td>
<td>Social Work Research Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Core Courses

All Ph.D. students must complete the following core courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>042:300</td>
<td>Social Work Proseminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>042:301</td>
<td>Knowledge Building in Social Work Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:302</td>
<td>Social Policy and Poverty in the U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:303</td>
<td>Social Work Research Practicum</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>042:304</td>
<td>Thesis Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>042:306</td>
<td>Social Work Teaching Practicum</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Research Methods, Statistics, Data Analysis

Students earn 9 s.h. in research methods, statistics, and data analysis course work.

Outside Discipline Requirement

Students earn 12 s.h. in one outside discipline (psychology, sociology, or public health), as follows.

- One methods course: 3 s.h.
- One theory course: 3 s.h.
- Two electives: 6 s.h.
Additional Electives

Students earn 6 s.h. in elective course work offered by a department or program other than social work (in addition to the electives in the outside discipline).

Admission

Students are admitted only for full-time study. Admission to the Ph.D. program requires a master's degree in social work from a program accredited by the Council on Social Work Education (CSWE) or a master's degree in a related field. Prospective students also may apply to the M.S.W./Ph.D. program.

The school makes special efforts to recruit students from underrepresented minorities, especially Iowa residents. The program accepts four or five students each year.

Applicants should have an undergraduate g.p.a. of at least 3.00 and a composite score (verbal and quantitative) of at least 1100 on the Graduate Record Examination (GRE) General Test and must have completed an introductory statistics course. All applicants must submit a completed Graduate College application form, undergraduate and graduate transcripts, Graduate Record Examination scores, a personal statement of professional goals, including area of interest and reason for pursuing the Ph.D. (two to three pages), a résumé, a sample of scholarly writing (scholarly publication or research or theoretical paper), and four letters of recommendation (two must be academic references). International applicants whose first language is not English must submit scores on the Test of English as a Foreign Language (TOEFL).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants must submit the application form, fee, and other materials to the Office of Admissions. An application packet and list of guidelines are available from the office. The application is due February 1 for the following academic year.

Financial Support

Doctoral students are guaranteed up to three years of financial support from the School of Social Work, including research or teaching assistantships and fellowships. Students whose first language is not English must take the SPEAK test in order to be considered for teaching assistantships. Assistants who hold appointments of one-quarter-time or more are assessed Iowa resident tuition, for which they receive a scholarship, and their computer fees and health insurance premiums are waived for each semester they hold an appointment during the academic year. For more information, see Funding Your Doctoral Education on the School of Social Work web site or Cost of Attendance on the Office of Student Financial Aid web site.

Projects, Seminars

Students may become involved in special projects such as the National Resource Center for Family-Centered Practice and the School of Social Work's programs in gerontology and in end-of-life care.

The school also offers students the opportunity to participate in travel/study seminars. Urban, rural, national, and international seminars are available.

Continuing Education

Nondegree students may enroll for selected courses and workshops through Saturday & Evening Classes in Iowa City and the School of Social Work's off-campus programs. There are limits on the amount of graduate course work that may be applied to the master's requirements for students who later enroll in the program.

Social Work Courses

Primarily for Undergraduates

042:022 Introduction to Social Work 4 s.h.
Social welfare as a social institution; settings, methodologies of social work, practice; profession of social work; historical development of American social welfare, social work; a minimum of 45 hours volunteer work. Prerequisite: sophomore or higher standing or consent of instructor. Same as 034:022.

042:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>042:042</td>
<td>Intercultural Communication</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Relationships among culture-based assumptions, values, thought patterns, communication behavior; theory and practice. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 036:042, 187:042.</td>
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<tr>
<td>042:141</td>
<td>Fundamentals of Social Work Practice</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Professional practice: functions, roles, skills, conceptual frameworks, values, ethics; focus on integrated approach to practice, including assessment, intervention, evaluation of interventions, termination with individuals, families, groups; emphasis on empirically based practice. Prerequisite: admission to social work B.A. program. Pre- or corequisite: 042:140.</td>
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<tr>
<td>042:142</td>
<td>Interpersonal Skills Laboratory</td>
<td>2 s.h.</td>
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<td></td>
<td>Practice of interpersonal skills required in the helping relationship. Prerequisite: admission to social work B.A. program. Pre- or corequisite: 042:141.</td>
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<tr>
<td>042:144</td>
<td>Introduction to Social Work Research</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Scientific approach to knowledge building, with emphasis on critical use of research; quantitative and qualitative methods, evaluation of practice, computerized data analysis, ethics and diversity in social work research. Prerequisite: admission to social work B.A. program or consent of instructor.</td>
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<tr>
<td>042:157</td>
<td>Nonprofit Organizational Effectiveness I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 032:127, 06J:147, 06T:144, 096:168.</td>
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<tr>
<td>042:158</td>
<td>Nonprofit Organizational Effectiveness II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 024:148, 032:128, 06J:148, 096:169.</td>
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<tr>
<td>042:171</td>
<td>Social Work Processes</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Context of practice examined to understand structural factors that affect clients and communities; culturally competent practice using empowerment perspective. Prerequisite: admission to social work B.A. program. Pre- or corequisite: 042:140 or consent of instructor.</td>
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<tr>
<td>042:189</td>
<td>Field Experience Seminar</td>
<td>1 s.h.</td>
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<td></td>
<td>Opportunity for students to recount their experiences from generalist practice in agencies; application of knowledge, skills, and values of culturally competent social work. Prerequisite: completion of course work in the major. Corequisite: 042:193.</td>
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<tr>
<td>042:191</td>
<td>Individual Study</td>
<td>arr.</td>
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<td></td>
<td>Project related to student interest carried out under direction of faculty member.</td>
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<tr>
<td>042:192</td>
<td>Honors in Social Work</td>
<td>arr.</td>
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<td></td>
<td>Supervised individual research. Prerequisite: honors standing.</td>
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<tr>
<td>042:193</td>
<td>Field Experience</td>
<td>arr.</td>
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<td></td>
<td>Supervised experience in selected social welfare organizations; application of knowledge and skill common to generalist practice in an agency setting. Prerequisites: completion of course work in the major, and social work senior standing or consent of instructor. Corequisite: 042:189.</td>
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</tbody>
</table>

For Undergraduate and Graduate Students

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>042:108</td>
<td>Basic Aspects of Aging</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

For Undergraduate and Graduate Students
Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Prerequisites: (for 042:108) 031:001 or 034:001, and sophomore or higher standing. GE: Social Sciences. Same as 096:108, 153:108, 169:108.

042:112 Human Sexuality, Diversity, and Society
Physiological, psychological aspects; parameters defined by students, instructor. Same as 096:112.

042:120 Service Learning and Social Welfare
Experiential learning in areas such as social justice, child welfare, community organizing, early intervention.

042:129 Substance Use and Abuse
Chemical dependency for helping professions; etiological, physiological, psychological, legal, sociological aspects; treatment methods. Prerequisite: junior or higher standing or consent of instructor.

042:130 Family Development Specialist Model
Use of family development specialist model of family-centered practice to facilitate improved family functioning, economic independence; relationship building, systems theory, family-centered case management, conflict management, empowerment strategies. Prerequisite: completion of family development specialist certification course.

042:135 Global Aging: Cultural Comparisons
Social construction of older adulthood across cultures; social privilege, with emphasis on age privilege and ageism. Same as 153:135.

042:140 Human Behavior in the Social Environment
Behavior and development in context of social, ecological systems and human diversity; overview of biopsychosocial dimensions, individual behavior, and development throughout lifespan; contexts of diverse family, group, community, organization, and cultural systems. Prerequisite: admission to social work B.A. or M.S.W. program or consent of instructor.

042:143 Social Welfare Policy and Practice
Basic social welfare policies and programs; economic, social, ideological, and political conditions that have influenced formation and implementation of social policy, current structure of major social welfare policies. Prerequisite: admission to social work B.A. or M.S.W. program or consent of instructor.

042:147 Discrimination, Oppression, and Diversity
Theoretical and historical perspectives on racism, sexism, other forms of discrimination; applications to social work, culturally competent practice, change strategies. Prerequisite: admission to social work B.A. or M.S.W. program or consent of instructor.

042:185 Social Policy and the Elderly
Public social policies, their affect on well-being of elderly, including women and minorities; U.S. and other nations’ policies. Prerequisites: 042:143, an introductory course on aging, and junior or higher standing; or consent of instructor. Same as 153:185.

042:186 Death/Dying: Issues Across the Life Span
Introduction to death and dying; historical, cultural, societal, personal perspectives. Prerequisite: admission to School of Social Work or Aging Studies Program, or consent of instructor. Same as 153:186.

042:190 Field Work in Gerontology
Opportunities for students in various disciplines to relate their areas of study to elderly and aging; interdisciplinary relationships, approaches to meeting needs of elderly. Prerequisite: consent of instructor. Same as 153:190.

042:194 Social Work Practice in Health Care Settings
Introduction to organization, provision of social work services in health care settings; practice issues such as models of intervention, ethical questions, impact of cultural diversity on health care. Prerequisite: 042:141 or 042:150 or consent of instructor.

042:195 Introduction to Nursing Homes
Overview of nursing home roles in context of long-term care system, characteristics of nursing home residents. Same as 153:195.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>042:196</td>
<td><strong>Family Violence</strong></td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Child abuse and neglect, domestic violence, elder abuse; causes, policy aspects, identification, reporting, treatment, prevention.</td>
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<tr>
<td>042:197</td>
<td><strong>Child Welfare Policy and Practice</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Public and private child welfare practice and organizations in the United States; historical and legal aspects, co-occurring issues, foster care, adoption, family preservation.</td>
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<td>Human behavior, practice, social welfare policy. Prerequisite: consent of instructor.</td>
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</table>

**Primarily for Graduate Students**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>042:145</td>
<td><strong>Organization and Community Practice</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Models that underlie theories of organization, community practice; principles of macro social work and skill development in relationship building, needs assessment, decision making, planning, implementing, ethics, program and self-evaluation. Prerequisite: admission to M.S.W. program or consent of instructor.</td>
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<tr>
<td>042:146</td>
<td><strong>Computer Laboratory</strong></td>
<td>1 s.h.</td>
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<td></td>
<td>Use of microcomputers in social work practice; user skill, software for a variety of applications in social service settings. Prerequisite: admission to M.S.W. program.</td>
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<tr>
<td>042:148</td>
<td><strong>Social Work Research Methods</strong></td>
<td>3 s.h.</td>
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<td></td>
<td>Knowledge and skills for evaluating practice and carrying out social work research; formulation of research questions; research design and methodology; sampling techniques; protection of human subjects; descriptive statistics; computerized data analysis. Prerequisite: admission to M.S.W. program.</td>
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<tr>
<td>042:150</td>
<td><strong>Social Work Practice with Individuals, Families, and Groups</strong></td>
<td>3 s.h.</td>
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<td></td>
<td>Models and underlying theories of empirically based direct social work practice; emphasis on an ecosystem strengths perspective; phases of helping relationship, strengths-based assessment, change process in interpersonal helping relationships. Prerequisites: 042:140 and admission to M.S.W. program. Corequisites: 042:151, 042:290, and 042:291 for students who have completed 60 s.h.</td>
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<tr>
<td>042:151</td>
<td><strong>Social Work Practice Skills Laboratory</strong></td>
<td>1 s.h.</td>
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<td></td>
<td>Interpersonal skills practice in the helping relationship; small-group format. Prerequisite: admission to M.S.W. program or consent of instructor. Pre-or corequisite: 042:290. Corequisites: 042:150 and 042:291.</td>
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<tr>
<td>042:153</td>
<td><strong>Programs and Services for Aging Adults</strong></td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Major gerontological programs and services, practitioners’ need for basic aging-practice competence; aging network; income, employment, health maintenance programs; continuum of care (preventive and well-elderly services, in-home services, community-based services, institutional care); assessment; major elder health issues, informal care; end-of-life care. Same as 153:153.</td>
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<tr>
<td>042:204</td>
<td><strong>Human Services Administration</strong></td>
<td>2 s.h.</td>
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<td>Effects of organizational structures/processes on individual performance; models of management, communication patterns, leadership styles; skill in technical writing, decision making, personnel and financial management, applied professional ethics. Prerequisite: completion of foundation courses or consent of instructor.</td>
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<tr>
<td>042:211</td>
<td><strong>Individual and Family Development: Life Span</strong></td>
<td>3 s.h.</td>
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<td></td>
<td>Infancy through senescence; families from their beginnings through their later years; theoretical, methodological issues. Same as 153:211.</td>
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<tr>
<td>042:216</td>
<td><strong>Group Facilitation in Human Sexuality</strong></td>
<td>0-3 s.h.</td>
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<td>Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. Prerequisite: 042:112 or consent of instructor. Same as 096:216.</td>
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<tr>
<td>042:219</td>
<td><strong>Aging and the Family</strong></td>
<td>2-3 s.h.</td>
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</tbody>
</table>
Research related to aging and the family; intergenerational relations, marital status in later life, diversity of older families, caregiving, elder abuse, policy issues. Same as 153:219.

042:220 Family Law
Legal systems, rights, processes related to families; marriage, divorce, custody, protective services, reproductive rights, adoption, commitment, delinquency, education, poverty, discrimination; roles of lawyers, social workers in legal system. Prerequisite: 042:143 or consent of instructor.

042:224 Spirituality and Ethics in Social Work
Knowledge, values, and skills that provide a framework for spiritually sensitive social work practice; preparation for responding competently and ethically to diverse spiritual perspectives, for recognizing and reflecting on one's own spiritual beliefs, and for identifying appropriate ways to apply personal beliefs to practice with varied populations while safeguarding client autonomy and self-determination.

042:228 Theories of Personality and Psychopathology
Theories and their relevance to social work practice with diverse populations. Prerequisites: 042:140 and social work graduate standing, or consent of instructor.

042:229 Working with Groups
Theory and practice of group work, group process, leadership styles and skills; fundamental theory, skills necessary to form and facilitate a small group. Prerequisite: completion of foundation courses or consent of instructor.

042:232 Therapy with Couples
Married and other couples as social systems; theories of functional, dysfunctional systems; techniques of intervention. Prerequisite: completion of foundation courses or consent of instructor.

042:233 School Social Work Practice
School as a social institution; activities of school social worker; theoretical, practice issues; current issues in field.

042:234 Social Work Practice and Use of the Diagnostic and Statistical Manual of Mental Disorders
Major categories of psychopathology, DSM-IV system of classification; individual behavior and presentation of symptoms considered through DSM-IV multiaxial approach to diagnosis; effects of culture, developmental stage, and gender on presentation of mental disorders.

042:235 Object Relations in Social Work Practice
Theories, practice skills; focus on object relations theory and therapy as a bridge between systemic perspective and working with individuals. Prerequisites: 042:250 and completion of foundation courses, or consent of instructor. Same as 153:235.

042:236 Interventions with Individuals
Comparison of two or more intervention theories and approaches used in social work practice with individuals; attention to diverse populations and across life span. Prerequisite: completion of foundation courses or consent of instructor.

042:237 Social Work Practice with Children, Youth, and Families
Preparation for practice in child welfare, family service agencies; family life cycle, child development, child maltreatment, problems of adolescence, social services for families and children, legal issues. Prerequisite: completion of foundation courses or consent of instructor.

042:238 Introduction to Play Therapy
Major theories and techniques of play therapy, relevance to social work practice. Prerequisite: 042:150 or consent of instructor.

042:247 Nonprofit Organizational Effectiveness I

042:248 Nonprofit Organizational Effectiveness II

Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 024:248, 028:258, 032:228, 06J:248, 091:322, 174:248.

042:250 Family-Centered Theory and Practice I
3 s.h.
Theoretical bases for family-centered practice; comparison and analysis; skill development in analyzing problem situations, implementing change strategies. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:251 Family-Centered Theory and Practice II
3 s.h.
Techniques for assessment, intervention in family-centered practice; evaluation of practice; theoretical and clinical bases for intervention. Prerequisite: 042:250 or consent of instructor.

042:252 Advanced Social Policy for Family Practice
3 s.h.
Systematic basis for examining social, economic, and political factors that influence formation of social policies; social policy implementation, impact of social policies on vulnerable individuals and families. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:254 Introductory Seminar: End-Of-Life Services in Rural Communities
2-3 s.h.
Basic principles of hospice and palliative care, rural service delivery, community assessment.

042:255 Integrative Seminar in End-of-Life Care
1 s.h.
Integration of students' knowledge, skills, and values for practice in end-of-life care and bereavement; application to case studies and advanced practicum setting. Prerequisite: admission to end-of-life care area. Corequisite: 042:292 or 042:295.

042:260 Integrated Social Work Theory and Practice I
3 s.h.
Theories, skill development, evaluation, ethical issues in integrated social work practice; intermediate group work for culturally competent intervention; small task groups. Prerequisite: completion of foundation courses or consent of instructor.

042:261 Integrated Social Work Theory and Practice II
3 s.h.
Continuation of 042:260; theories, skills evaluation, ethical issues; advanced group work for culturally competent intervention; case management, program development, funding evaluation, large task groups. Prerequisite: 042:260.

042:262 Advanced Social Policy for Integrated Practice
3 s.h.
Systematic basis for critical examination of social, economic, and political factors that influence formation of social policies; social policy implementation, impact of social policies on vulnerable populations, service providers, communities. Prerequisite: completion of M.S.W. foundation courses or consent of instructor.

042:270 Advanced Research
2-3 s.h.
Research project relevant to social work practice that builds on knowledge and skills developed in 042:148; data analysis, report of results; ethical principles applied to research. Prerequisites: 042:148 or consent of instructor, and admission to M.S.W. program.

042:271 Individual Study
arr.
Project related to student interest; directed by faculty member.

042:272 Thesis
arr.

042:281 Social Work Practice: Selected Aspects
arr.
Topics not covered in another course; diversity, social justice and ethics issues related to a social work practice area. Repeatable.

042:285 Travel/Study Seminar
arr.
Opportunity for cross-cultural learning through U.S. or international travel; focus on social welfare issues. Repeatable. Prerequisite: 042:143 or consent of instructor.
042:290 Foundation Practicum in Social Work
3 s.h.
Generalist practice experience with individuals, families, small groups, organizations, communities; communication skills, change process, professional values and ethics applied at multiple system levels; students evaluate their own practice using a learning contract in an agency setting. Prerequisite: admission to M.S.W. program. Pre- or corequisites: 042:140, 042:143, 042:145, 042:146, 042:147, 042:150, 042:151, and 042:291.

042:291 Foundation Practicum Seminar
1 s.h.
Integration of academic, experiential learning; self-assessment, peer feedback to promote model of professional accountability. Prerequisite: admission to M.S.W. program. Pre- or corequisites: 042:140, 042:143, 042:145, 042:146, 042:147, 042:150, 042:151, and 042:290.

042:292 Advanced Practicum in Family-Centered Practice I and II
arr.
Two-semester field course; family-centered practice theory and skills implemented in interventions with individuals, families. Repeatable. Prerequisite: completion of M.S.W. foundation courses. Pre- or corequisites: 042:250, 042:251, 042:252, and 042:270. Corequisite: 042:293 (fall) or 042:294 (spring).

042:293 Advanced Practicum Seminar in Family-Centered Practice I
1 s.h.
Two-semester field course; family-centered practice theory and skills implemented in interventions with individuals, families. Prerequisite: completion of M.S.W. foundation courses or consent of instructor. Corequisite: 042:292.

042:294 Advanced Practicum Seminar in Family-Centered Practice II
1 s.h.

042:295 Advanced Practicum in Integrated Practice
arr.
Two-semester field course; integrated social work theories and interventions implemented in work with individuals, families, organizations, formal and informal networks. Repeatable. Prerequisite: completion of M.S.W. foundation courses. Pre- or corequisites: 042:260, 042:261, 042:262, and 042:270. Corequisite: 042:297 (fall) or 042:298 (spring).

042:296 Advanced Practicum in School Social Work
arr.
Field course; social work theories and interventions implemented in schools. Repeatable. Prerequisite: completion of M.S.W. foundation courses. Pre- or corequisites: 042:250 or 042:260, 042:251 or 042:261, and 042:252 or 042:262.

042:297 Advanced Practicum Seminar in Integrated Practice I
1 s.h.
Two-semester course; social work knowledge, skills, values, and professional identity integrated in context of advanced practice and direct multisystemic interventions. Corequisite: 042:295 or 042:296.

042:298 Advanced Practicum Seminar in Integrated Practice II
1 s.h.

042:300 Social Work Proseminar
1 s.h.
Faculty research related to families, children, and elderly theory, research designs, methodologies, findings, dissemination. Prerequisite: admission to Ph.D. program.

042:301 Knowledge Building in Social Work Practice
3 s.h.
Epistemology of social work practice theories, importance for knowledge building; practice theories of personal and interpersonal change, family life cycle development, empowerment. Prerequisite: admission to Ph.D. program or consent of instructor.

042:302 Social Policy and Poverty in the U.S.
3 s.h.
Causes of poverty in the U.S., public policies for low-income families; arguments and evidence offered for and against a particular explanation for poverty in the U.S. or approach to anti-poverty policy; how authors construct their arguments, underlying theory, evidence the authors bring to bear, ways they explore consequences of policy proposals; role of social science theory in advancing knowledge in social policy and research interests. Prerequisite: admission to a doctoral program or consent of instructor.

042:303 Social Work Research Practicum
1-6 s.h.
Joint research with faculty; development of research design, choice or construction of measurement tools, selection of sample, collection and analysis of data, writing of a research report. Prerequisite: admission to Ph.D. program or consent of instructor.
042:304 Thesis Seminar  
Intensive faculty supervision and peer consultation for preparing thesis proposals; topics include literature synthesis, theory, critical and analytic thinking skills, logical argument, research design, and expectations and standards for scholarly discourse. Prerequisite: admission to Ph.D. program or consent of instructor.

042:306 Social Work Teaching Practicum  
Development of knowledge, values; skills essential for effective, culturally competent social work educators; applied teaching experience and seminar. Prerequisite: admission to Ph.D. program.

042:330 Ph.D. Dissertation  
arr.
Sociology

Chair: Celesta Albonetti
Professors: Celesta Albonetti (Sociology/Law), Jennifer Glass (Sociology/Community and Behavioral Health), Karen V. Heimer, Jae-On Kim (Distinguished Service Professor), Kevin Leicht, Michael Lovaglia
Professor emeritus: Charles W. Mueller
Associate professors: Robert Baller, Jennifer Glanville, Mary Noonan
Assistant professors: John R. Stratton, Stephen G. Wieting
Associate professors emeriti: Alison Bianchi, Mary Campbell, Steve Hitlin, Freda Lynn, Anthony Paik, Michael Sauder
Visiting assistant professors: Paul Sturgis, Christine Whelan
Undergraduate degrees: B.A., B.S. in Sociology
Undergraduate nondegree program: Minor in Sociology
Graduate degrees: M.A., Ph.D. in Sociology
Web site: http://www.uiowa.edu/~soc

Undergraduate Programs

The department offers a Bachelor of Arts, a Bachelor of Science, and a minor in sociology. A bachelor's degree with a major in sociology provides a liberal arts and sciences education. Although it does not prepare students for a specific career, it provides background for employment in fields such as human services, criminal justice, corrections, sales, public relations, advertising, personnel, applied social research, community organization, and teaching social science in secondary schools. It also provides a foundation for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and similar areas. Finally, the B.A. and B.S. prepare students to work toward advanced degrees in sociology, which qualify them for college or university teaching and work in academic, private, and governmental research.

Bachelor of Arts

The Bachelor of Arts in sociology requires a minimum of 120 s.h., including at least 34-35 s.h. of work for the major. Several courses required for the major have specific prerequisites, and in some cases, students must earn a minimum grade in a prerequisite course. In planning to complete the major, students must be careful to take courses in the proper sequence.

The following sociology courses may not be used to complete requirements for the major: 034:029 First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study.

In addition to specific courses required for the degree, students are advised to take 6 s.h. of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology. Students also must complete the College of Liberal Arts and Sciences General Education Program.

Transfer students majoring in sociology must meet the same requirements as other sociology students. They must take at least 12 s.h. in sociology at The University of Iowa and must have transfer course work approved for credit toward the major by a sociology advisor.

INTRODUCTORY COURSES

These courses should be taken early, to lay the foundation for all other work in the major.

034:001 Introduction to Sociology Principles 3-4 s.h.
22M:009 Elementary Functions (or a more advanced mathematics course) 4 s.h.

THEORY AND METHODS COURSES

These courses should be completed as early as possible. The college-level mathematics course is a prerequisite for 034:010 Quantitative Data Analysis. Students must earn a grade of C or higher in 034:009 Sociological Theory, 034:010 Quantitative Data Analysis, and 034:011 Research Methods in order to complete the major. Students must take 034:009 Sociological Theory and 034:010 Quantitative Data Analysis before enrolling in 034:011 Research Methods.

034:009 Sociological Theory 3 s.h.
034:010 Quantitative Data Analysis 3 s.h.
034:011 Research Methods 3 s.h.
ELECTIVES


CAPSTONE COURSE

The capstone course illustrates the student's accomplishments in the major. It is usually taken during the student's last semester of course work for the major. In order to enroll in the capstone course, students must complete 034:011 with a grade of C or higher.

034:195 Capstone Course in Sociology 3 s.h.

SOCIOLOGY MAJOR PORTFOLIO

When each student graduates, he or she is required to provide the department with documents that will constitute his or her Sociology Major Portfolio. The portfolio provides a record of the student's development in the department. It also is an attractive set of materials that can serve as evidence of interests and work for prospective employers and graduate schools.

The portfolio should include at least three documents: a paper from the first two years of sociology classes, such as a book review or statement comparing competing theories; a research paper that reports the findings of original research; and a statement summarizing an experience in which the student applied sociological knowledge, such as a report on an internship, a consideration of contributions that sociological information made to a summer job, or a reflection on a period of study abroad.

Together, the materials should display development toward technical correctness in citing others' work, accurate use of sociological concepts, technical proficiency in using research methods, and the ability to explain implications of research findings.

The portfolio may be submitted electronically. Contact the department for more information.

Bachelor of Science

The Bachelor of Science in sociology requires a minimum of 120 s.h., including at least 45 s.h. of work for the major, with a minimum of 30 s.h. in sociology. Several courses required for the major have specific prerequisites, and in some cases, students must earn a minimum grade in a prerequisite course. In planning to complete the major, students must be careful to take courses in the proper sequence.

The following sociology courses may not be used to complete requirements for the major: 034:029 First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study.

In addition to the specific courses required for the degree, students are advised to take 6 s.h. of course work in at least one of these departments: anthropology, economics, geography, political science, or psychology. Students also must complete the College of Liberal Arts and Sciences General Education Program.

Transfer students majoring in sociology must meet the same requirements as other sociology students. They must take at least 12 s.h. in sociology at The University of Iowa and must have transfer course work approved for credit toward the major by a sociology advisor.

INTRODUCTORY COURSES

These courses should be taken early, to lay the foundation for all other work in the major.

034:001 Introduction to Sociology Principles 3-4 s.h.

One of these sequences:

22M:025-22M:026 Calculus I-II 8 s.h.
THEORY AND METHODS COURSES

These courses should be completed as early as possible. The college-level mathematics course is a prerequisite for 034:010 Quantitative Data Analysis. Students must earn a grade of C or higher in 034:009 Sociological Theory, 034:010 Quantitative Data Analysis, and 034:011 Research Methods in order to complete the major. Students must take 034:009 Sociological Theory and 034:010 Quantitative Data Analysis before enrolling in 034:011 Research Methods.

034:009 Sociological Theory 3 s.h.
034:010 Quantitative Data Analysis (or an approved course in statistics) 3 s.h.
034:011 Research Methods 3 s.h.
22S:120 Probability and Statistics 4 s.h.

One of these:
026:103 Introduction to Symbolic Logic 3 s.h.
026:104 Introduction to Philosophy of Science 3 s.h.

ELECTIVES


CAPSTONE COURSE

The capstone course illustrates the student's accomplishments in the major. It is taken during the student's last semester of course work for the major. In order to enroll in the capstone course, students must complete 034:011 Research Methods with a grade of C or higher.

034:195 Capstone Course in Sociology 3 s.h.

SOCIOLOGY MAJOR PORTFOLIO

When each student graduates, he or she is required to provide the department with documents that will constitute his or her Sociology Major Portfolio. The portfolio provides a record of the student's development in the department. It also is an attractive set of materials that can serve as evidence of interests and work for prospective employers and graduate schools.

The portfolio should include at least three documents: a paper from the first two years of sociology classes, such as a book review or statement comparing competing theories; a research paper that reports the findings of original research; and a statement summarizing an experience in which the student applied sociological knowledge, such as a report on an internship, a consideration of contributions that sociological information made to a summer job, or a reflection on a period of study abroad.

Together, the materials should display development toward technical correctness in citing others' work, accurate use of sociological concepts, technical proficiency in using research methods, and the ability to explain implications of research findings.

The portfolio may be submitted electronically. Contact the department for more information.

B.A. or B.S. with Teacher Licensure

Students who wish to obtain teacher licensure in the social sciences while majoring in sociology should contact the Department of Teaching and Learning in the College of Education.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they
may be offered by departments other than the major department.)

Note: Sequencing of course work is important in meeting the four-year plan.

**Bachelor of Arts**

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** 034:001 Introduction to Sociology Principles or equivalent, and at least half of the semester hours required for graduation

**Before the seventh semester begins:** a college-level math course numbered 22M:009 Elementary Functions or above, 034:009 Sociological Theory, 034:010 Quantitative Data Analysis, and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** 034:011 Research Methods

**During the eighth semester:** enrollment in all remaining course work in the major, including the capstone course and two electives in the major (excluding 034:002 Social Problems, 034:029 First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study), all remaining General Education courses, and a sufficient number of semester hours to graduate

**Bachelor of Science**

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation

**Before the fifth semester begins:** 034:001 Introduction to Sociology Principles or equivalent, 034:009 Sociological Theory, one sociology elective, and at least half of the semester hours required to graduate

**Before the seventh semester begins:** 034:010 Quantitative Data Analysis, 034:011 Research Methods, calculus I-II, one more sociology elective, and at least three-quarters of the semester hours required for graduation

**Before the eighth semester begins:** 22S:120 Probability and Statistics and one more sociology elective

**During the eighth semester:** enrollment in all remaining course work in the major, including the capstone course and two electives in the major (excluding 034:002 Social Problems, 034:029 First-Year Seminar, 034:197 Teaching Internship, and 034:198 Directed Individual Study), all remaining General Education courses, and a sufficient number of semester hours to graduate

**Honors**

The University of Iowa Honors Program provides a stimulating and integrative educational experience for undergraduate majors who perform at a high level. Membership in the honors program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

To qualify for the honors program in sociology, students must have a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.33 in the major in sociology courses.

To earn a degree with honors in sociology, students complete the following:

034:100 Honors Proseminar, taken spring semester of the junior year

At least one advanced undergraduate course numbered above 034:100, or a graduate course (instructor's permission to enroll for honors designation is required)

034:199 Honors Research, the senior honors thesis

The honors thesis is conducted under faculty supervision; it gives students an opportunity to conduct sociological research in close consultation with a faculty member of the student's choice.

**Minor**

The minor in sociology requires a minimum of 15 s.h. in sociology courses, including 12 s.h. in courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor must include 034:009 Sociological Theory.

A minor in sociology is a good complement to a number of majors, particularly other social sciences, business, elementary education, or nursing.

**National Honor Society**
The department sponsors a chapter of Alpha Kappa Delta International Sociology Honor Society. Students who have a cumulative and sociology g.p.a. of 3.00 or higher and have attained junior or higher standing are considered for membership. Consult the Alpha Kappa Delta faculty advisor for details.

**Graduate Programs**

The department offers a Master of Arts and a Doctor of Philosophy in sociology. Graduate study in sociology focuses on the Ph.D. Students are awarded the M.A. as they fulfill requirements for the Ph.D.

The Doctor of Philosophy emphasizes research and aims primarily to prepare sociologists for academic positions in colleges and universities or for research positions in academic, private, and government institutions. Opportunities for research using survey, experimental, and observational methods are readily available in the department.

**Master of Arts**

The Master of Arts in sociology requires 30 s.h. of graduate credit with thesis or research paper, and 38 s.h. of graduate credit without. The program without thesis is intended for students seeking a terminal degree and for whom a wider range of course content in sociology is appropriate.

All M.A. students must complete the following with grades of B-minus or higher.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>034:201</td>
<td>History of Sociological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:214</td>
<td>Introduction to Sociological Data Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:215</td>
<td>Sampling, Measurement, and Observation Techniques</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>034:216</td>
<td>Linear Models in Sociological Research</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Doctor of Philosophy**

The Doctor of Philosophy in sociology requires a minimum of 72 s.h. of graduate credit. In addition to 034:214 Introduction to Sociological Data Analysis and 034:216 Linear Models in Sociological Research, which are required for the M.A., students must complete two 200-level elective courses in methods/statistics, and 034:202 Theory Construction and Analysis. Most courses for the Ph.D. are taken in the student's two areas of interest. Candidates also must pass two area examinations, write and defend a dissertation prospectus, and write and successfully defend a dissertation.

Doctoral students take two area exams—one from list A, the other from list A or B. List A has five standing committees: crime, law, and deviance; family; political sociology; social psychology; and stratification. For the list B exam, a student may propose any area that is not covered under List A and for which there is adequate faculty support.

For a detailed statement of graduate study regulations, contact the Department of Sociology. Prospective doctoral students should examine this document carefully.

**Joint Ph.D./J.D.**

The Department of Sociology and the College of Law offer the joint Juris Doctor/Doctor of Philosophy. The program is highly individualized, allowing students to explore varied aspects of the relationship between law and society. Joint Ph.D./J.D students may count up to 12 s.h. of graduate credit toward both degrees, with approval from the Department of Sociology and the College of Law.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. For information about the J.D., see Juris Doctor (College of Law) in the Catalog.

**Teaching Assistantship Training**

All new graduate students are expected to attend a three-day orientation for teaching assistants before classes begin. In addition, 034:382 Teaching Sociology is required for students who wish to teach their own courses.

**Admission**

Admission to graduate study in sociology usually requires an undergraduate g.p.a. of at least 3.25 and a score of 1100 or higher (quantitative and verbal) on the Graduate Record Examination (GRE) General Test. Students whose first language is not English should submit scores on the Test of English as a Foreign Language (TOEFL).

Applicants must meet the admission requirements of the Graduate College; see Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants also must complete the sociology
department application and use the department's personal reference forms to obtain three letters of recommendation; forms can be printed from the Department of Sociology web page.

All application materials for fall admission must be received by January 1. The deadline for applying for departmental financial support is January 1. Evaluation of applications begins in early January.

Admission decisions are based on consideration of prior academic performance, personal reference letters, scores on the GRE General Test, and the applicant's statement of reasons for pursuing advanced work in sociology at The University of Iowa. The department has no specific undergraduate course requirements for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission, and there is no foreign language requirement for a graduate degree in sociology. To inquire about admission, consult the chair of the admissions committee, Department of Sociology.

Financial Support

The Department of Sociology offers teaching assistantships and research assistantships for graduate students. Students who receive one-half-time teaching or research assistantships work 20 hours each week for faculty members on either teaching or research assignments. Out-of-state students who hold assistantships are assessed tuition at the resident rate. Graduate students also may be eligible for fellowships offered by the Graduate College.

Research Centers and Facilities

Center for Asian and Pacific Studies
The Center for Asian and Pacific Studies provides excellent opportunities for studying Asia from a social science perspective. It supports related Asia studies and offers a monthly seminar that features lively discussions by scholars from many different disciplines.

Center for Criminology and Sociolegal Studies
The Center for Criminology and Sociolegal Studies is an interdisciplinary research and teaching program for the study of crime, law, deviance, social control, and mental health. It sponsors a colloquium series in crime, law, and social control, in which affiliates, graduate students, and outside speakers present their ongoing research, and a working-paper series in which members disseminate research papers to the academic community. The center also provides research support and a research infrastructure for faculty and graduate students and offers graduate research assistantships for interested students. Internship in Criminal Justice and Corrections (034:148) is administered through the center.

Center for the Study of Group Processes
The Center for the Study of Group Processes has an 18-room small-group laboratory with eight computer-controlled subject rooms that provide audiovisual and psychophysiological recording capabilities, two large-group rooms with an adjoining observation room, an audiovisual control room, a sociophysiological instrumentation lab, a virtual social environment lab, and other flexible research office spaces.

Institute for Inequality Studies
The Institute for Inequality Studies (IIS) promotes research on the causes and consequences of social inequality's many forms—class, gender, race, ethnicity, age, sexual orientation, religion, and disability. The institute's mission is to stimulate interdisciplinary exchange; encourage scholarly engagement in research through seminars highlighting current policy-relevant research and methodology; train the next generation of demography and inequality scholars; provide technical and administrative support to researchers working with survey and population data; and facilitate development of collaborative proposals for external funding. IIS also promotes the visibility of social inequality scholarship by sponsoring symposia on inequality research issues that attract community interest.

Sociology Courses

For Undergraduates

The following courses are open only to undergraduates. Courses without prerequisites open to first-year students are 034:001 Introduction to Sociology Principles, 034:002 Social Problems, 034:018 Gender and Society, 034:020 Principles of Social Psychology, 034:029 First-Year Seminar, 034:066 Social Inequality, and 034:158 Economy and Society. All other undergraduate courses are open to first-year students with stated prerequisites.

034:001 Introduction to Sociology Principles 3-4 s.h.
How individuals are organized into social groups, ranging from intimate groups to bureaucracies, and how these influence individual behavior; nature and interrelationships of basic social institutions, such as family, education, religion, economy. GE: Social Sciences.

034:002 Social Problems 3-4 s.h.
Emergence and distribution of selected social problems; alternative solutions; may include population, inequality, female-male relationships, racism, crime. GE: Social Sciences.

034:009 Sociological Theory 3 s.h.
Theoretical perspectives in sociology; construction, evaluation of sociological explanations. Prerequisite: 034:001 or consent of instructor.

034:010 Quantitative Data Analysis 3 s.h.
Applied statistics for sociology majors: frequency distributions, graphic presentation, measures of central tendency, measures of variability, elementary probability, populations and samples, sampling distributions, estimation and confidence intervals, hypothesis testing, chi-square test, regression and correlation, analysis of variance; computer software used in data analysis; emphasis on appropriate use and interpretation of statistics in the study of sociological topics. Prerequisites: 22M:009 or a higher-level math course, 034:001, 034:009, and sociology major or consent of instructor.

034:011 Research Methods 3 s.h.
Basic scientific concepts; emphasis on theoretical thinking, statement of researchable propositions, logic and meaning of proof operant in the research process; general issues in designing social research, including problems of sampling and measurement, analysis, presenting research data, interpreting research findings. Prerequisites: grades of C or higher in 034:009 and 034:010, and sociology major or consent of instructor.

034:029 First-Year Seminar 1-2 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

034:100 Honors Proseminar 2 s.h.
Topic development for senior honors projects. Offered spring semesters. Prerequisite: sociology honors standing.

034:190 Selected Topics in Sociology 3 s.h.
Topics vary.

034:195 Capstone Course in Sociology 3 s.h.
Senior project illustrating student's accomplishments during his or her undergraduate career; prepared in collaboration with sociology faculty member or other experts in the student's area of sociological interest; record for student's own reflection, information for potential employers and graduate programs. Prerequisite: grade of C or higher in 034:011.

034:196 Field Experience arr.
Supervised field experience in sociology; primarily for students participating in Washington Center internship. Prerequisites: sociology major, junior standing, and consent of advisor.

034:197 Teaching Internship 3 s.h.
Experience providing supervised support for instructors teaching basic courses in sociology. Prerequisites: appointment as sociology undergraduate teaching aide and consent of instructor.

034:198 Directed Individual Study arr.
Prerequisite: consent of instructor.

034:199 Honors Research arr.
Research projects under faculty supervision. Prerequisite: consent of instructor.
Advanced Courses

Social Theory

034:200 Graduate Proseminar 1-2 s.h.
General introduction to department and discipline for entering graduate students; departmental and graduate college requirements, program and career planning, interaction with faculty members, consideration of student interests and concerns. Two semesters beginning in fall.

034:201 History of Sociological Theory 3 s.h.
Ideas of major 19th- and 20th-century social thinkers (e.g., Marx, Weber, Durkheim, Simmel, Mead).

034:202 Theory Construction and Analysis 3 s.h.
Contemporary theoretical issues and nature of theory, theory's place in research, strategies of theory construction. Prerequisite: sociology graduate standing.

034:203 Seminar: Selected Topics in Sociological Theory 3 s.h.
Repeatable.

034:205 Seminar: Selected Topics in Sociology 3 s.h.
Current theoretical and methodological issues. Prerequisite: sociology graduate standing or consent of instructor.

034:213 Qualitative Methods 3 s.h.
Logic of qualitative research; basic skills necessary for a qualitative research project. Prerequisite: sociology graduate standing or consent of instructor.

034:214 Introduction to Sociological Data Analysis 3 s.h.
Statistical measures for descriptive methods and association; logic of statistical inference, hypothesis testing; background essential to understanding linear models, models for categorical data analysis. Prerequisite: introductory statistics or graduate standing or consent of instructor.

034:215 Sampling, Measurement, and Observation Techniques 3 s.h.
Research designs; sampling designs and techniques; questionnaire construction, interviewing techniques; participant and nonparticipant observation; coding and preparation of data for analysis; measurement techniques, reliability, and validity. Prerequisite: 034:214 or graduate standing or consent of instructor.

034:216 Linear Models in Sociological Research 3 s.h.
Statistical techniques associated with general linear model; emphasis on multiple regression, its generalizations; corresponding computer programs. Prerequisite: 034:214 or graduate standing or consent of instructor.

034:218 Advanced Statistical Modeling of Data 3 s.h.
Models for analysis of categorical data, including loglinear, logit, related discrete data models. Prerequisites: advanced graduate standing and consent of instructor.

034:219 Structural Equation Modeling 3 s.h.
Overview of structural equation models (SEMs), also known as LISREL models, covariance structure models; specific types of SEMs, such as simultaneous equations and confirmatory factor analysis; intermediate topics. Prerequisite: consent of instructor.

Social Psychology

034:020 Principles of Social Psychology 3-4 s.h.
Introduction to theory and research in small groups; interpersonal and intergroup processes. GE: Social Sciences.

034:023 The Social Psychology of Leadership 3 s.h.
Techniques, proven by research, that enhance students' ability to know, work with, and lead people; recent research in social psychology, how it applies to practical leadership problems.
034:125 Small Group Analysis
Internal processes governing small groups (e.g., friendship cliques, families, the president's cabinet, committees); how small groups relate to the larger social environment; groups' impact on their members. Prerequisite: 034:001 or 034:002.

034:128 Sociology of Mental Illness
The socially constructed nature of mental illness; theoretical perspectives and research on social antecedents and social consequences of mental health. Prerequisite: 034:001 or 034:002 or 034:020 or consent of instructor.

034:220 Contemporary Approaches to Social Psychology
Review and critical analysis of current theoretical approaches to and systems of social psychological analysis.

034:221 Seminar: Selected Topics in Social Psychology
Selected theoretical and methodological issues. Repeatable.

Deviance, Delinquency, Crime, and Law

034:040 Criminology
Nature and causes of crime; the criminal justice process, correctional treatment, crime prevention. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:045 Global Criminology
Crime and the control of crime at the transnational and sub-national levels of analysis; focus on non-U.S. societies; consequences of economic, political, and cultural globalization.

034:141 Juvenile Delinquency
Delinquency as an individual and social problem; theories of the causes of juvenile delinquency; law enforcement and the juvenile court; methods of correction and prevention. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:143 Gender and Violence
Extent and nature of gendered violence, interpretation of patterns using feminist theory and perspectives on masculinities and heterosexism; examination of interpersonal violence, including criminal violence committed by women and men, violence against women and men (victimization), spousal/intimate partner abuse, youth gangs, bullying in schools, sexual violence, female and genocide. Same as 131:161.

034:146 Deviance and Control
Norm violation or deviant behavior; behaviors that, while deviant, do not violate legal norms, and ways of controlling these behaviors that do not involve the criminal justice system; ways of explaining deviance, consequences of deviant behavior for the deviant actor. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:148 Internship in Criminal Justice and Corrections
Supervised field work in a criminal justice or correctional agency. Prerequisites: 034:040 or 034:141, sociology major, junior standing, and consent of director of the Center for Criminology and Socio-Legal Studies.

034:149 Sociology of Criminal Punishment
Sociological theories and research on criminal punishment; classical and contemporary theories; research on imprisonment and capital punishment. Prerequisite: 034:009.

034:182 Sociology of Law
Conceptual, historical, and theoretical issues of law and operation of the criminal justice system; theory and research on law and the criminal justice system. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:186 Criminal Legal System
Discretionary decision making in the U.S. criminal courts, from arrest through sentencing; legal and sociolegal issues relevant to each stage of felony adjudication; sociological and social-psychological theories of decision making in adjudication, empirical research testing these theories. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:240 Seminar: Criminological Theories

Theories of crime causation and their relationships to the cultures in which they have functioned.

034:242 Communities and Crime 3 s.h.
Distribution of crime as rooted in community-level conditions such as concentrated affluence or poverty, racial residential segregation, unemployment, family disruption, and immigration. Prerequisite: sociology graduate standing or consent of instructor.

034:244 Seminar: Selected Topics in Deviance and Control 3 s.h.
Critical analysis of current research; emphasis on theoretical contributions and methodological foundations. Repeatable.

034:246 Morals, Markets, and Crime 3 s.h.
Impact of markets on the moral and social order of advanced capitalist societies; market conditions that promote or suppress crime. Prerequisite: sociology graduate standing or consent of instructor.

034:248 Social Psychology of Crime and Delinquency 3 s.h.
Social-psychological explanations of crime and delinquency examined by tracing the origins of individual-level criminological theories. Prerequisite: sociology graduate standing or consent of instructor.

034:282 Sociology of Law Seminar 3 s.h.
Relationship between law and society explored through writings and research of classical and contemporary sociologists and legal scholars. Prerequisite: sociology graduate standing or consent of instructor.

Family, Life-Style, Children, Aging

034:018 Gender and Society 3-4 s.h.
Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: Cultural Diversity. Same as 131:018.

034:061 The American Family 3 s.h.
Structure and process; change over the life cycle; interrelations with other institutions; historical changes; variations by social class and ethnic group. Prerequisite: 034:001.

034:075 Fertility and Reproduction 3 s.h.
Exploration of when, why, how, and with whom Americans bear children, comparison to other developed and developing countries in the world; infertility and its treatments; ethics of surrogacy; voluntary childlessness; rapid rise of nonmarital childbearing in the U.S. and other countries; politics of childbirth; declining populations; rapid aging of rich where women have basically stopped having children. Same as 131:075, 154:075.

034:159 Families in Comparative Perspective 3 s.h.
Prerequisite: 034:001 or 034:061.

034:162 Work and Family Institutions 3 s.h.
Contemporary problems in the integration of work and family life; origins of work-family conflict in process of industrialization; effects of job-family conflicts on mothers, fathers, children; cross-cultural differences in dealing with work-family conflict. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 131:160.

034:266 Gender Inequalities 3 s.h.
Current sociological research on public policies that affect family life and well-being; divorce and child custody policies, teen pregnancy and abortion, family poverty, child care and work-family policies. Same as 131:266.

034:269 Seminar: Selected Topics in Family Sociology 3 s.h.
Selected theoretical and methodological issues. Repeatable. Prerequisite: social science graduate standing or consent of instructor.
**034:022 Introduction to Social Work**
Social welfare as a social institution; settings, methodologies of social work, practice; profession of social work; historical development of American social welfare, social work; a minimum of 45 hours volunteer work. Prerequisite: sophomore or higher standing or consent of instructor. Same as 042:022.

**034:126 Social Movements in the U.S.**
Social unrest; crowd behavior; social movements treated as a form of social change. Prerequisite: 034:001 or 034:002 or consent of instructor.

**034:153 Public Opinion**
Role in making public policy; formation, change of political attitudes and opinions; political ideology; measurement of public opinion; how opinion polls are conducted; experience with interviewing and conducting public opinion research. Prerequisite: 034:001 or consent of instructor for sociology majors. Same as 030:171.

**034:179 Sociology of Education**
Overview of the sociology of education; historical and current sociological perspectives on education; race, class, gender inequality in schooling; higher education; contemporary debates in education, such as affirmative action, school choice; service-learning component. Prerequisite: 034:001 or 034:002 or consent of instructor.

**034:285 Complex Organizations**

**034:310 Education and Social Change**
Role of educational institutions, in connection with political and economic structures, in the process of social change; illumination of theories of social change through case studies of educational systems in both less-developed and industrialized nations. Same as 07B:210.

**Social Class, Inequality, Race, Organizations, Politics**

**034:066 Social Inequality**
Major theoretical perspectives for understanding inequality in economics, power, prestige; the magnitude of social inequality in the United States; sex and race inequality; trends in and causes of social mobility; selected consequences of social inequality. GE: Cultural Diversity.

**034:135 Sociology of Sexuality**
Sociological perspectives on sexuality, including theoretical and conceptual developments, empirical regularities, and social implications; sexual expression in the United States. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 154:145.

**034:150 Political Sociology**
Sociological analysis of political behavior and belief, group conflict and political process, group consensus, political institutions, power and policy-making systems; relationship of the political system to the social system. Prerequisite: 034:001 or consent of instructor.

**034:152 African American and Latino Inequality**
African American and Latino experiences in inequality, such as skin-tone stratification, majority-minority group relations, and residential segregation.

**034:155 Comparative Studies in Race and Ethnicity**
Multidisciplinary study of intergroup relations, with emphasis on historical, sociological, and social psychological issues in the study of American minority groups. Prerequisite: 034:001 or 113:003 or consent of instructor. GE: Cultural Diversity.

**034:156 Gender Inequality**
Gender issues in major social institutions such as family, education, workplace, culture; marriage, family care, childhood gender socialization, occupational segregation, wage gap, household division of labor, and so forth. Prerequisite: 034:001 or 034:002.

**034:158 Economy and Society**
Economic debates that faced advanced market economies in the 20th century with extensions to the developing world; development and maintenance of investment elites and labor markets, development and extension of state activity.

034:164 Organizations and Modern Society 3 s.h.
 Approaches to the sociological study of economic and noneconomic organizations; the role of power and authority within the organization, and between the organization and its environment. Prerequisite: 034:001 or 034:020 or consent of instructor.

034:165 Sociology of Work and Occupations 3 s.h.
 Work commitment; prestige of occupations; occupational and professional careers; occupational groups and organizations; alienation; women, minorities, and occupational structures; capitalism and occupations. Prerequisite: 034:001 or 034:020 or consent of instructor.

034:170 The Connected Age: A Sociological Introduction to Social Networks 3 s.h.
 Introduction to the basic properties of network structure (e.g., density, mutuality, cliques); substantive insights regarding the role and consequences of networks in social life; the role of networks in job searching/hiring processes; how innovations diffuse through networks; and relationships as social resources. Prerequisites: 034:001 or 034:002 or consent of instructor.

034:175 Community and Urban Sociology 3 s.h.
 Impact of urbanization on social life, social networks; how social forces shape patterns of urban growth; racial segregation, gentrification; consequences of the growth of suburbs; urban crises, including concentrated poverty and crime. Prerequisite: 034:001 or 034:002 or consent of instructor.

034:253 Social Stratification 3 s.h.
 Classical and contemporary theories; current research on the causes and magnitude of inequality in economics, power, and prestige; social mobility; critical issues in stratification.

034:254 Seminar: Selected Topics in Social Stratification 3 s.h.
 Prerequisite: social science graduate standing or consent of instructor.

034:256 Gender Stratification Seminar 3 s.h.
 Occupational gender segregation; gender gap in pay; role of family caregiving in women's lower pay; devaluation of caregiving work; comparable worth. Same as 131:256.

034:257 Seminar: Sociology of Labor Markets 3 s.h.
 Sociological and economic theories and research concerning area/regional/local labor markets, industrial sectors and the dual labor market, occupational/internal labor markets; other structural explanations of inequality.

034:258 Seminar: Economy and Society 3 s.h.
 Relationships between social classes and nation-states in capitalist societies; historical experience of the United States; comparative perspective, especially regarding Western Europe.

034:259 Social Network Analysis 3 s.h.
 Relational, data-oriented approach to representing linkages or relationships among social units, and to examine the relevance of these social structures in social processes. Prerequisite: basic multiple regression or consent of instructor.

Teaching

034:382 Teaching Sociology 2-3 s.h.
 Supervised preparation for teaching sociology courses; literature on teaching; course objectives, alternative teaching techniques; preparation of course syllabus, lectures, discussions, exams. Prerequisites: advanced sociology graduate standing and consent of instructor.

Independent Reading and Research

034:381 Summer Research Practicum 2 s.h.
Students discuss their participation in ongoing research, review and critique each other's projects, write research reports describing their work. Prerequisite: sociology graduate standing or consent of instructor.

**034:383 Readings and Research Tutorial**
Repeatable. Prerequisite: consent of supervising faculty member.

**034:385 Master's Thesis**
Repeatable.

**034:386 Ph.D. Dissertation**
Repeatable.
Spanish and Portuguese

**Chair:** Mercedes Niño-Murcia  
**Professors:** Thomas E. Lewis, Adriana Méndez Rodenas  
**Associate professors:** Maria José Barbosa, Maria A. Duarte, Denise K. Filos, Brian Gollnick, Paula M. Kempchinsky, Philip W. Klein, Judith E. Liskin-Gasparro, Ana Merino, Kathleen Newman (Spanish and Portuguese/Cinema and Comparative Literature), Mercedes Niño-Murcia, Diana Vélez  
**Adjunct associate professor:** Sue E. Otto  
**Assistant professors:** Roberto Ampuero, Amber Brian, Luis Martin-Estudillo, Ana Rodríguez, Jason Rothman, Santiago Vaquera-Vásquez, Sarah Ann Wells  
**Visiting assistant professor:** Crystal Chemris  
**Lecturers:** Gay Allan, Ozzie Díaz-Duque, Deanna Johnson, Pilar Marcé, Maria Nilsson  
**Undergraduate degrees:** B.A. in Spanish, Portuguese  
**Undergraduate nondegree programs:** Minor in Spanish, Portuguese  
**Graduate degrees:** M.A., Ph.D. in Spanish  
**Web site:** [http://www.uiowa.edu/~spanport](http://www.uiowa.edu/~spanport)

The Department of Spanish and Portuguese provides course work for undergraduate and graduate majors in Spanish or Portuguese and for the satisfaction of foreign language requirements for undergraduate and graduate degrees in other fields. It also participates in several study abroad programs.

### Undergraduate Programs

The department offers a Bachelor of Arts in Spanish and in Portuguese, and a minor in Spanish and in Portuguese.

Elementary and intermediate courses in Spanish interrelate five performance goals—listening, reading, speaking, writing, and cultural knowledge—in a staged progression whose overall goal is to develop proficiency. The curriculum emphasizes acquisition of Spanish language skills in communicative contexts, enrichment of vocabulary through an introduction to Hispanic culture, and development of grammatical accuracy in speaking and writing.

The beginning course in Portuguese is for students without previous study or experience with the language. There also is a special Portuguese course for students who already know Spanish. Portuguese classes provide a great deal of individual attention in an informal language-learning environment. Courses emphasize speaking, comprehending, reading, and writing Brazilian Portuguese. They incorporate cultural material in the form of videos and music.

### Bachelor of Arts in Spanish

The Bachelor of Arts in Spanish requires a minimum of 120 s.h., including 36 s.h. of work for the major. The program is built on course work in Spanish peninsular and Spanish American literature, Hispanic cultures, Hispanic linguistics, and advanced language skills. The goal of the major is twofold: to study content areas related to the Spanish language, such as literature, culture, and linguistics; and to develop proficiency in the Spanish language in all four skills: speaking, listening, reading, and writing.

Students who major in Spanish may go on to graduate study in areas such as Spanish and Spanish American literature, Hispanic linguistics, or comparative literature. They also may combine their Spanish studies with other areas to prepare for career opportunities in international business, government, travel, journalism, or communications, where knowledge of another language and other cultures is essential.

The required 36 s.h. (12 courses) of work for the major must be earned in courses more advanced than those required for the General Education Program. Students complete core requirements consisting of one course from each of the principal academic areas of the department (see "Required Core" below). The remaining eight courses are electives, which may focus on one or more of the principal areas or may include a broad range of courses in the department (see "Electives" below). Spanish majors are required to take at least three courses numbered 035:170 or above. Senior Seminar (035:195) is recommended for all Spanish majors.

Students also must complete the College of Liberal Arts and Sciences General Education Program.

**REQUIRED CORE**

One course in Hispanic linguistics from these:

- 035:121 Introduction to Hispanic Linguistics: 3 s.h.
- 035:122 Spanish Sound Structure: 3 s.h.
- 035:123 Foundations in Sociolinguistics: 3 s.h.
- 035:124 Introduction to Bilingualism: 3 s.h.
- 035:127 Social History of the Romance Languages: 3 s.h.
- 035:128 Introduction to Spanish Language Acquisition: 3 s.h.
- 035:129 Structure of the Spanish Language: 3 s.h.
- 035:184 Linguistic Aspects of Second Language Acquisition: 3 s.h.
- 035:185 Topics in Hispanic Linguistics: 3 s.h.
035:186 Introduction to Spanish Syntax 3 s.h.
035:187 Spanish Word Formation 3 s.h.
035:188 History of the Spanish Language 3 s.h.
035:189 Introduction to Spanish Phonology 3 s.h.

One course in Spanish peninsular literature from these:

035:110 Readings in Spanish Literature and Culture 3 s.h.
035:151 Renaissance and Golden Age Literature 3 s.h.
035:152 Romanticism and Revolution in Spain 3 s.h.
035:155 Hispanic Institute: Literature 3 s.h.
035:156 Spanish Literature of the Transition 3 s.h.
035:160 Medieval Spanish Literature in Context 3 s.h.
035:161 Modern Spanish Literature 3 s.h.
035:180 Spanish Golden Age Fiction 3 s.h.
035:181 Topics in Spanish Literature 3 s.h.
035:182 Society and Poetry: Spanish Lyric 3 s.h.
035:183 Don Quijote 3 s.h.

One course in Spanish American literature from these:

035:111 Readings in Spanish American Literature and Culture 3 s.h.
035:131 Contemporary Spanish American Fiction 3 s.h.
035:132 Spanish American Poetry 3 s.h.
035:134 Spanish American Short Story 3 s.h.
035:140 Spanish American Literature of Fantasy 3 s.h.
035:144 Latin American Women Writers 3 s.h.
035:147 Topics in National Literatures/Cultures 3 s.h.
035:173 Colonial Spanish American Literature 3 s.h.
035:178 Topics in Spanish American Literature 3 s.h.

One course in culture (peninsular or Spanish American) from these:

035:113 Screening Latin America 3 s.h.
035:130 Spanish American Civilization 3 s.h.
035:135 Latinos in the United States 3 s.h.
035:136 Culture and Language in the Andes 3 s.h.
035:137 Introduction to Chicano Literature and Culture 3 s.h.
035:145 Latin America Cinema 3 s.h.
035:148 Topics in Cinema, Literature, and Society 3 s.h.
035:150 Spanish Civilization 3 s.h.
035:154 Hispanic Institute: Culture 3 s.h.
035:172 Topics in Cultural Studies 3 s.h.
035:179 Islamic Cultural Presence in Spain 3 s.h.
035:190 Chicano Cinema 3 s.h.
035:191 Topics in Latin American Cinema 3 s.h.
035:192 Topics in Film Studies 3 s.h.
035:193 Sexualities in Hispanic Cultures 3 s.h.

ELECTIVES

Eight elective courses in Spanish 24 s.h.

The eight electives may include course work in Spanish language skills as well as more advanced language courses that focus on specialized language functions and purposes. They also may include courses in Portuguese or in related areas from other departments, such as history, anthropology, comparative literature, international studies, or linguistics, subject to restrictions (see "Restrictions" below).

RESTRICTIONS

All course work taken for the major must be numbered 100 or above, including three numbered from 035:170 Advanced Grammar Review through 035:198 Honors: Research and Thesis
A maximum of five of the following courses or equivalent transfer or study abroad courses (as determined by the department's study abroad advisor) may be applied toward the major.

035:103 Writing in Spanish  3 s.h.
035:104 Hispanic Institute: Language  3 s.h.
035:106 Spanish Conversation I  3 s.h.
035:116 Advanced Composition  3 s.h.
035:117 Introduction to Spanish-English Translation  3 s.h.
035:118 Business Spanish  3 s.h.
035:119 Journalistic Writing in Spanish  3 s.h.
035:120 Taller Basico de Escritura Creativa  3 s.h.
035:141 Spanish Conversation II  3 s.h.
035:168 Advanced Business Spanish  3 s.h.
035:170 Advanced Grammar Review  3 s.h.
035:103 Composition and Conversation (Spanish)  3 s.h.

Credit from 038:100 Accelerated Elementary Portuguese does not count toward the Spanish major. Of the 5 s.h. earned in 038:101 Accelerated Intermediate Portuguese, 3 s.h. may be applied toward the Spanish major. Students may count a maximum of 6 s.h. of course work in Portuguese toward the Spanish major.

A maximum of 6 s.h. of related course work from outside the department may be applied toward the Spanish major. Related courses must be approved by the director of undergraduate studies and must be numbered 100 or above. For a list of approved related courses, contact the Department of Spanish and Portuguese.

Students may count a maximum of 6 s.h. in courses taught in English, either in the Department of Spanish and Portuguese or in other departments, toward the Spanish major.

A maximum of 15 s.h. of credit in approved courses may be transferred from other institutions toward the requirements for the major in Spanish.

Advanced undergraduates preparing to earn a B.A. with honors may enroll in graduate courses with the permission of their advisor and the department chair. Ordinarily, permission is granted only to students who have completed a minimum of 30 s.h. of work for the major and whose g.p.a. in the major is 3.75 or higher.

B.A. with Teacher Licensure in Spanish

Spanish majors interested in teaching Spanish at the elementary and/or secondary level must successfully complete the requirements for the Spanish major as well as the requirements for teacher licensure students administered by the College of Education's Teacher Education Program in foreign language. For more information, contact the Department of Teaching and Learning.

Bachelor of Arts in Portuguese

The Bachelor of Arts in Portuguese requires a minimum of 120 s.h., including at least 30 s.h. of work for the major.

Portuguese is spoken in Portugal, Brazil, Angola, Mozambique, Cape Verde, and Guine-Bissau. There are more speakers of Portuguese in South America than there are of Spanish. Knowledge of Portuguese and of Luso-Brazilian culture is extremely helpful for students interested in career opportunities in international business, government, or related fields.

The major in Portuguese requires the following courses or their equivalents. All course work in the major must be more advanced than second-year level. Courses listed under "Prerequisites" do not count toward the 30 s.h. of work for the major.

Students also must complete the College of Liberal Arts and Sciences General Education Program.

PREREQUISITES

038:100 Accelerated Elementary Portuguese  5 s.h.

One of these:

038:101 Accelerated Intermediate Portuguese  5 s.h.
038:102 Portuguese for Spanish Speakers  3 s.h.
REQUIRED COURSES

038:103 Composition and Conversation 3 s.h.
038:105 Brazilian Literature Before 1900 3 s.h.
038:106 Brazilian Literature After 1900 3 s.h.
038:107 Introduction to Portuguese Literature 3 s.h.
038:120 Topics in Luso-Brazilian Culture 3 s.h.

ELECTIVES

Portuguese courses numbered above 038:102 15 s.h.

A maximum of 6 s.h. may be taken in approved courses in related areas (e.g., art, anthropology, comparative literature, geography, history, Latin American studies, linguistics, sociology, Spanish).

Four-Year Graduation Plan

B.A. in Spanish

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Before the third semester begins: Intermediate Spanish I (or equivalent second-year, first-semester competence in Spanish) and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: two courses in Spanish beyond Intermediate Spanish II (or equivalent second-year, second-semester competence) and at least one-half of the semester hours required for graduation

Before the seventh semester begins: four more courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: a total of nine courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.A. in Portuguese

Before the third semester begins: competence in first-year Portuguese and at least one-quarter of the semester hours needed for graduation

Before the fifth semester begins: competence in intermediate Portuguese and at least one-half of the semester hours needed for graduation

Before the seventh semester begins: three or four additional courses for the major and at least three-quarters of the semester hours needed for graduation

Before the eighth semester begins: a total of seven courses in the major

During the eighth semester: enrollment in remaining major course work, any remaining General Education courses, and sufficient semester hours to graduate

Honors

Honors in Spanish

Admission to the honors program in Spanish requires a cumulative University of Iowa g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in Spanish (contact the University of Iowa Honors Program for more information about honors study at Iowa). Graduation with honors in Spanish requires that one course (3 s.h.) taken to complete major requirements be chosen for honors designation, in consultation with the department honors advisor. It also requires registration for 3 s.h. in 035:198 Honors: Research and Thesis. To complete 035:198 Honors: Research and Thesis successfully, students must present an honors thesis written in Spanish and must present it orally to a faculty committee in a meeting conducted in Spanish.
Honors in Portuguese

Admission to the honors program in Portuguese requires a cumulative g.p.a. of at least 3.33 and a g.p.a. of at least 3.50 in Portuguese (contact the University of Iowa Honors Program for more information about honors study at Iowa). Graduation with honors in Portuguese requires that students earn 3 s.h. in 038:198 Honors Research and Thesis, plus 3 s.h. in a course chosen in consultation with the department honors adviser. Both courses (6 s.h.) count toward the total 30 s.h. required for the major in Portuguese. Students must write an honors thesis and present it orally to a committee of three faculty members.

Minor in Spanish

The minor in Spanish requires a minimum of 15 s.h. in Spanish courses, including 12 s.h. in 100-level courses taken at The University of Iowa or in a University of Iowa study abroad program. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. All courses for the minor must be taught in Spanish.

Minor in Portuguese

The minor in Portuguese requires a minimum of 15 s.h. in Portuguese courses, including 12 s.h. in advanced courses taken at The University of Iowa or in a University of Iowa study abroad program. For the minor, courses numbered 038:103 Composition and Conversation and above are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

Courses for Nonmajors

The department offers several opportunities for students who wish to study Spanish or Portuguese—languages that are spoken in many cultures around the world and are important in the study of literature, art, film, and many other disciplines.

All new students—including transfer students—who have previous course work or other experience with Spanish should take the Spanish Foreign Language Placement Test, offered at no charge during summer orientation programs and monthly by Evaluation and Examination Service. The test helps determine the level at which a student should begin Spanish language study at The University of Iowa. Students should take the test before they register for their first University of Iowa Spanish course.

Students with experience in Portuguese may receive individual evaluations from the department.

The department’s language courses are open to any student who has satisfied the specified prerequisites.

General Education Foreign Language Requirement

The department offers courses in Spanish and in Portuguese that may be used to fulfill the General Education Program foreign language requirement.

The first course in the Spanish sequence, 035:001 Elementary Spanish I, is most appropriate for students who have had no previous experience in Spanish. The Spanish Foreign Language Placement Test determines where students should begin study. Students consult with their advisors.


The Portuguese sequence 038:100 Accelerated Elementary Portuguese and 038:101 Accelerated Intermediate Portuguese provides a full two-year course in two semesters. The sequence is open to any student with an interest in the language.

Other Courses for Nonmajors

Undergraduate students in other disciplines may fulfill General Education Program requirements with 035:020 Contemporary Spanish American Narrative, and 038:020 Contemporary Brazilian Narrative, which are taught in English. The department offers several other literature, film, and cultural survey courses of general interest that are taught in English.

Related Certificates

Certificate in International Business
The College of Liberal Arts and Sciences and the Henry B. Tippie College of Business offer the Certificate in International Business. The program entails study of international business and economics; international relations and institutions; a foreign language, such as Spanish or Portuguese; and the art, literature, culture, and/or politics of a geographic area. The certificate is designed not only for students who intend to pursue careers in international business but also for those interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates.

The certificate requires 29 s.h. It offers a wide range of electives, permitting students to tailor areas of specialization to their interests and to complement majors in both liberal arts and sciences and business administration.

For more information, see International Business in the Catalog and contact CLAS Academic Programs & Services in the College of Liberal Arts and Sciences or the Undergraduate Program Office in the Tippie College of Business.

Certificate in Latin American Studies

The department plays an important and active role in the Latin American Studies Program, an interdisciplinary undergraduate program focusing on the history, politics, social organization, economy, art, music, religion, and literature of Latin America. Work in the program may lead to a certificate or a minor in Latin American studies.

The Certificate in Latin American Studies requires a minimum of 24 s.h. Students must have sufficient competence in Spanish or Portuguese to do background readings in the language before enrolling in the required senior seminar.

See Latin American Studies in the Catalog for detailed information about the certificate or minor.

Study Abroad

Study Abroad Programs in Spanish

The department participates in study abroad programs in Spain and Latin America; most of these programs offer both summer and semester or yearlong programs. The programs in Spain include the Board of Regents, State of Iowa, program in Valladolid (summer only); USAC (University Studies Abroad Consortium) programs in Alicante, Bilbao, Madrid, and San Sebastián; and CIEE programs in Alcalá de Henares, Alicante, Barcelona, Madrid, Palma de Mallorca, and Madrid.

The programs in Latin America include USAC programs in Chile (Santiago), Costa Rica (Heredia, Puntarenas, and San Ramón), and Mexico (Puebla); CIEE programs in Argentina (Buenos Aires), Chile (Santiago and Valparaíso), Dominican Republic (Santiago), Mexico (Guanajuato), and Peru (Lima). They also include the CIC Latin America Health, Nutrition, and Environmental Issues Program in Santiago, Dominican Republic, and the CIC Summer Program in Guadalajara, Mexico. For information about other foreign study programs in Spanish, contact the Office for Study Abroad.

Participation in a number of different programs allows the department to offer study abroad opportunities that take into account a variety of student interests and needs. Credit earned in these or other study abroad programs may be applied toward the requirements for the Spanish major or minor. The amount of credit that may be accepted varies according to the program.

Interested students should contact the department's study abroad advisor. Credit earned in study abroad programs other than those listed above counts as transfer credit and is subject to the 15 s.h. maximum allowed for the major and the 3 s.h. maximum allowed for the minor.

Study Abroad Programs in Portuguese

The department offers a seven-week program in Salvador, Bahia, Brazil that includes courses in Portuguese language, culture, and literature. Contact the Office for Study Abroad for details.

Graduate Programs

The department offers two graduate degrees: a Master of Arts and a Doctor of Philosophy in Spanish.

Master of Arts

The Master of Arts in Spanish requires 30 s.h. of graduate credit. It offers two emphases: literature, which provides training in literary analysis and broad knowledge of representative works in principal areas of Hispanic literature; and linguistics, which provides training in linguistic analysis and argumentation and broad knowledge of the principal subfields of Hispanic linguistics. Applicants to the M.A. program should have completed the equivalent of the undergraduate Spanish major with a g.p.a. of at least 3.00 in course work for the major.

A maximum of 9 s.h. of graduate credit in approved courses may be transferred from other institutions toward the 30 s.h. required for the M.A.
The M.A. requires the following 10 courses.

**LITERATURE EMPHASIS COURSES**

- 035:200 Foreign Language Teaching Methods 3 s.h.
- Two courses in Spanish linguistics numbered 035:170 and above 6 s.h.
- Two courses in Spanish (peninsular) literature numbered 035:170 and above 6 s.h.
- Two courses in Spanish American literature numbered 035:170 and above 6 s.h.
- One course in literary theory 3 s.h.
- Two electives 6 s.h.

At least eight of the 10 courses must be taken in the Department of Spanish and Portuguese and must be numbered above 035:170. The remaining two may be taken either in the Department of Spanish and Portuguese (numbered above 035:170) or in related departments, subject to approval by the director of graduate studies.

**LINGUISTICS EMPHASIS COURSES**

- 035:200 Foreign Language Teaching Methods 3 s.h.
- 035:204 Introduction to Spanish Linguistic Analysis 3 s.h.
- One course in Spanish or Spanish American literature numbered 035:170 and above 3 s.h.
- Two courses in syntax 6 s.h.
- Two courses in phonetics/phonology 6 s.h.
- One course in history of the Spanish language, language variation, or applied linguistics/language acquisition 3 s.h.
- One course in history of the Spanish language or language variation 3 s.h.
- Two electives 6 s.h.

Of these 10 courses, at least six must be offered by the Department of Spanish and Portuguese and numbered above 035:170. The remaining four may be offered by the Department of Spanish and Portuguese (numbered above 035:170) or the Department of Linguistics.

**LANGUAGE TOOL REQUIREMENT**

M.A. students must complete the equivalent of one year of college-level study of any approved second foreign language; Portuguese is highly recommended. They may satisfy this requirement either by examination or through courses taken at The University of Iowa or another accredited university; such course work does not count toward the 30 s.h. required for the M.A.

**EXAMINATIONS**

The M.A. comprehensive examination includes written and oral components. The written portion consists of a two-hour examination in each of three areas; an oral examination follows, usually lasting 90 minutes. The examining committee is composed of four departmental faculty members.

Students in the literature emphasis may choose to be examined in three literature areas or in two literature areas and one linguistics area. At least one literature area must be in Spanish literature and at least one must be in Spanish American literature. If three literature areas are chosen, at least one must represent literature written before 1700 (peninsular or Spanish American).

Students in the linguistics emphasis may choose to be examined in three linguistics areas or in two linguistics areas and one literature area. At least one of the linguistics areas must be in syntax or phonology. For students in both emphases, the third examination area may be a film area.

For reading lists, contact the Department of Spanish and Portuguese.

**MAXIMUM STUDY LOADS**

Maximum course registration is 15 s.h. of graduate-level course work during fall or spring semesters and 8 s.h. of graduate-level work during summer sessions. Students with one-quarter-time and one-third-time teaching assistantships are permitted to register for the maximum study loads. The normal full-time registration for students who hold one-half-time assistantships is three graduate courses in fall and spring semesters; one-half-time assistants may register for a maximum of 12 s.h. in fall and spring semesters and 6 s.h. in summer sessions. Additional semester
hours may be taken only with Graduate College approval.

Minimum course registration is 2 s.h. Students who fail to register for a period of 36 months must apply for readmission to the Graduate College.

Doctor of Philosophy

The Doctor of Philosophy in Spanish requires a total of at least 72 s.h. of graduate credit. Ph.D. students choose from two programs; one is dedicated to Hispanic literatures, the other to Hispanic linguistics. The literature program trains students in textual analysis and literary history, criticism, and theory. The linguistics program provides training in linguistic analysis and theory.

The literature program requires a minimum of 66 s.h. of course work (22 courses), of which 30 s.h. may have been earned for an M.A. in Spanish at The University of Iowa or at another institution, as approved by the director of graduate studies.

The linguistics program requires a minimum of 57 s.h. of course work (19 courses), of which 30 s.h. may have been earned for an M.A. in Spanish at The University of Iowa or at another institution, as approved by the director of graduate studies.

Both programs also require 6 s.h. earned in 035:299 Thesis, to complete the 72 s.h. required for the Ph.D.

Course requirements for each program are as follows.

LITERATURE TRACK: COURSES

Students must complete at least 36 s.h. (12 courses) beyond the master's degree (or 22 courses beyond the bachelor's degree). The following courses are required; courses taken for the M.A. may be used to meet part of this requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>Two courses in literary theory</td>
<td>6</td>
</tr>
<tr>
<td>Three courses in Spanish literature, at least one of which</td>
<td>9</td>
</tr>
<tr>
<td>must be pre-1700 literature</td>
<td></td>
</tr>
<tr>
<td>Three courses in Spanish American literature</td>
<td>9</td>
</tr>
<tr>
<td>One course in cinema</td>
<td>3</td>
</tr>
<tr>
<td>Two 300-level seminars in literary studies</td>
<td>6</td>
</tr>
<tr>
<td>One literature course in another Romance language (see</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Language and Literature Tool Requirements&quot;)</td>
<td></td>
</tr>
<tr>
<td>035:299 Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Each student's plan of study is tailored to his or her area of emphasis and must be approved by the student's advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be at the 200 and 300 levels, except the Romance literature course taken for the language tool requirement.

Literature Track: LANGUAGE AND LITERATURE TOOL REQUIREMENTS

Before the comprehensive examination, students must complete the equivalent of three years of college-level study in another Romance language and become well-acquainted with its literature in limited areas of specialization; the study of Luso-Brazilian literature is highly recommended. This requirement can be satisfied only through course work at The University of Iowa or another accredited university.

The equivalent of one year of college-level study of another approved foreign language also is required. If Portuguese is not the language chosen to fulfill the Romance literature requirement, it must be used for this requirement. Students who choose to write dissertations on topics in Spanish or Portuguese literature before 1700 must have one year of college-level Latin or the equivalent.

Students may satisfy the language tool requirement by examination or by course work at The University of Iowa or at another accredited university; language tool course work does not count toward the 72 s.h. required for the degree.

LINGUISTICS TRACK: COURSES

Students must earn at least 27 s.h. (9 courses) beyond the master's degree (or 19 courses beyond the bachelor's degree). The following courses are required; courses taken for the M.A. may be used to meet part of this requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>S.H.</th>
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</thead>
<tbody>
<tr>
<td>035:206 Spanish Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>035:207 Topics in Comparative Romance Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>035:209 Spanish Phonology</td>
<td>3</td>
</tr>
<tr>
<td>035:210 Spanish Syntax</td>
<td>3</td>
</tr>
</tbody>
</table>
The additional course in the dissertation research area (phonology, syntax, language acquisition, language variation) must be offered by the Department of Spanish and Portuguese or the Department of Linguistics.

Each student's plan of study is tailored to his or her area of emphasis and must be approved by the student's advisory committee. Ph.D. course work in Spanish (taken after the M.A.) must be at the 200 and 300 levels, except some courses offered by the Department of Linguistics and the required third-year-level course in Portuguese (see "Program II Language Tool Requirements" below).

**Linguistics Track: LANGUAGE TOOL and additional REQUIREMENTS**

Students in the linguistics track must complete the equivalent of three years of college-level study of Portuguese, and the equivalent of one year of college-level study of each of two other languages. For students specializing in historical linguistics, one of those two languages must be Latin.

Students may satisfy the language tool requirement by examination or by course work at The University of Iowa or at another accredited university. The language tool course work does not count toward the 57 s.h. of prethesis course work required for the degree, except the third-year-level course work in Portuguese, which may be counted with the faculty advisor's approval.

Students in the linguistics track also must make two colloquium presentations and produce two papers of publishable quality, and gain approval for them, in order to proceed to the comprehensive exam. The first paper must be in an area distinct from the dissertation research area and must be written during the second year of course work. The second paper must be in the dissertation research area and must be approved no later than the beginning of the semester in which the student takes the comprehensive exam.

**COMPREHENSIVE EXAMINATION**

The purpose of the Ph.D. comprehensive examination is to determine whether the student has gained sufficient breadth and depth of research knowledge in Hispanic literatures or linguistics to enter the profession as a teacher-scholar. The examining committee is composed of five departmental faculty members or four departmental faculty members and a fifth faculty member from a related department.

**Literature Track**

The comprehensive exam for the literature track includes four elements: two broad areas, one specialized area, one article, and an oral exam. Each element is supervised by a different committee member.

The two broad areas comprise lists of approximately 40 readings, which each list covering an established historical period that is tied to the student's Ph.D. course work (one Peninsular, the other Spanish-American). The lists must be approved by the supervisor before distribution to the rest of the committee. Each area is evaluated with a three-hour written exam, which is discussed during the student's oral exam.

The specialized area includes 25-40 secondary works that define the area and are related to the dissertation. The area is examined via a 15-20 page position paper, which is a critical synthesis of the secondary readings and normally becomes part of the dissertation introduction. The list and the paper must be written in consultation with the supervisor and must be approved by the supervisor at least one month before the exam.

The article is a 20-25 page research essay, usually a revised version of a paper written for one of the two required 300-level seminars. The article should be written in consultation with the professor who taught the seminar and with at least two other professors. It must be approved by the supervisor at least one month before the exam.

The oral exam lasts two hours, with approximately half devoted to the two broad areas and half to the article and the position paper.

**Linguistics Track**

The comprehensive exam for the linguistics track includes written and oral components. The written component...
comprises two weekend take-home exams consisting of linguistic analysis in two subdisciplines distinct from the subdiscipline of the intended dissertation research. The two-hour oral exam consists of one hour devoted to discussion of the second research paper and the other hour devoted to follow-up questions on the written exams.

**Dissertation**

After the Ph.D. comprehensive examination is completed, the candidate submits a dissertation prospectus for the dissertation committee's approval. The dissertation committee is composed of five faculty members, one of whom must be from outside the department.

Beginning fall 2009, all doctoral dissertations must be submitted to the Graduate College in electronic format. The dissertation, complete and in final form, must be submitted in the required electronic format at the Graduate College office by the first-deposit deadline date of the session in which the degree is to be conferred. The final deposit of the approved dissertation in electronic format must be deposited at the office by the appropriate deadline in the student's graduation semester.

Students must adhere to the Graduate College regulations regarding preparation of the dissertation copy; consult the Graduate College. For information on the dissertation and final examinations, see the Manual of Rules and Regulations of the Graduate College.

**Financial Support**

Teaching and research assistantships are available to qualified graduate students. Usually, two years of support are available for completion of the M.A. and four years beyond the receipt of the M.A. for the Ph.D. Applications for financial support should be made directly to the Department of Spanish and Portuguese.

**Facilities**

The Language Media Center (LMC) provides students and faculty with a broad range of services and facilities that include a state-of-the-art audio language laboratory, individual audio recording carrels, video viewing rooms for small groups, video viewing stations for individuals, and networked microcomputer and interactive multimedia workstations. The LMC maintains a number of instructional technology classrooms that have special video, audio, and computer equipment for in-class presentations. The center’s extensive collection of international media resources on audio tape, videotape, computer diskette, videodisc, and CD-ROM serves learners at many levels and in many disciplines.

**Spanish and Portuguese Courses**

**Basic Spanish**

Students must have permission from the chair of the Department of Spanish and Portuguese to take an elementary course for credit after having completed a higher-level course for which the elementary course or its equivalent is a prerequisite.

**035:001 Elementary Spanish I**

4 s.h.

Emphasis on oral and written skills. Taught in Spanish. Prerequisite: no previous study of Spanish. GE: Foreign Language First Level Proficiency.

**035:002 Elementary Spanish II**

4 s.h.

Continuation of 035:001; emphasis on oral and written skills. Taught in Spanish. Prerequisite: 035:001 or equivalent. GE: Foreign Language Second Level Proficiency.

**035:005 Elementary Spanish Review**

5 s.h.


**035:011 Intermediate Spanish I**

3-4 s.h.

Communication in speaking and writing; cultural topics. Taught in Spanish. Prerequisite: 035:002 or 035:005 or equivalent. GE: Foreign Language Second Level Proficiency.

**035:012 Intermediate Spanish II**

3-4 s.h.

Continuation of 035:011. Prerequisite: 035:011 or equivalent. GE: Foreign Language Fourth Level Proficiency.
035:013 **Accelerated Intermediate Spanish**  
6 s.h. 
The 035:011 - 035:012 sequence in one semester. Prerequisites: 035:002 or 035:005 or equivalent, and consent of Spanish GE coordinator. GE: Foreign Language Fourth Level Proficiency.

035:020 **Contemporary Spanish American Narrative**  
3 s.h. 
Themes and narrative techniques in major texts, 1960-present; overview of cultural, sociopolitical aspects. Taught in English, readings in English. Prerequisite: 08G:001. GE: Foreign Civilization & Culture, Humanities.

035:029 **First-Year Seminar**  
1-2 s.h. 
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

035:053 **Special Work**  
1-3 s.h.

035:060 **Latino/a Literature in the U.S.**  
3 s.h. 
Introduction to growing cultural production of varied Latino communities (e.g., Chicano, Puerto Rican American/Nuyorican, Cuban American) that have a strong presence in the United States; recent cultural production from borderland transcultural spaces with physical, cultural, economic, political, and mythical elements; visions of the United States from contemporary Latin American writers who recently have become U.S. residents. Taught in English. GE: Cultural Diversity, Humanities.

035:070 **Introduction to Latin American Studies**  
3 s.h. 
Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as 038:070, 130:070, 187:070.

**Spanish Level 1, Primarily for Undergraduates**

Students should take these courses at the start of the Spanish major.

035:103 **Writing in Spanish**  
3 s.h. 
Bridge from second-year Spanish to more advanced courses in Spanish language, linguistics, and literature; emphasis on skill development in writing, critical reading in Spanish, and oral communication. Taught in Spanish. Prerequisite: 035:012 or equivalent.

035:104 **Hispanic Institute: Language**  
3 s.h. 
Grammar essentials, written exercises, short compositions, conversational activities. Prerequisite: 035:012 or equivalent.

035:105 **Hispanic Institute: Study/Life in Spain**  
1 s.h.

035:106 **Spanish Conversation I**  
3 s.h. 
Development of conversational proficiency and cultural competence through action learning; strategic role playing and creative language use based on everyday situations in Hispanic cultures; composition skills and grammar review. Prerequisite: 035:012 or equivalent.

035:108 **Spanish in the U.S.**  
3 s.h. 
Issues related to Spanish in the United States; aspects of linguistics and sociolinguistics inherent to the existence and proliferation of Spanish in the United States. Taught in English.

035:109 **Study of Language: Myths and Concepts**  
3 s.h. 
How linguists look at language; basic concepts of linguistics and grammar. Prerequisite: 035:012 or equivalent.

035:110 **Readings in Spanish Literature and Culture**  
3 s.h. 
Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works, with focus on literature of Spain. Prerequisites: 035:012 or equivalent; no more than one Spanish course numbered above 035:100.
035:111 **Readings in Spanish American Literature and Culture** 3 s.h.
Tools for improving reading skills; basic concepts for textual understanding; historical overview of literary works, with focus on Spanish American literature. Prerequisite: 035:012 or equivalent.

035:112 **Introduction to Literary Analysis** 3 s.h.
Close readings of literary texts from Spain and Spanish America; basic concepts of genre (narrative, poetry, theater, essay); writing about literary texts. Prerequisite: 035:012 or equivalent.

035:113 **Screening Latin America** 3 s.h.
Latin American film; histories of the four major national film industries; aesthetic and political debates surrounding the New Latin American Cinema movement of the 1960s and 1970s. Prerequisite: 035:012 or equivalent.

**Spanish Level 2, Primarily for Undergraduates**

Students should have at least one Level 1 course before starting these courses. Some courses have additional prerequisites.

**Language Skills**

035:116 **Advanced Composition** 3 s.h.
Grammar review, class presentations and discussions; evolution of student compositions through peer editing, instructor critique, author's analysis; summary portfolio. Prerequisite: one Spanish course numbered above 035:100.

035:117 **Introduction to Spanish-English Translation** 3 s.h.
Introduction to written and sight translation: translation theory, elements for good translations and effective translation process, cultural aspects; practice in written translation. Prerequisite: one course in Spanish numbered above 035:100.

035:118 **Business Spanish** 3 s.h.
Clear, concise business writing; emphasis on linguistic and cultural proficiency. Prerequisite: one Spanish course numbered above 035:100.

035:119 **Journalistic Writing in Spanish** 3 s.h.
Spanish writing skills; introduction to style and practice of journalistic reporting and writing. Prerequisite: one Spanish course numbered above 035:100.

035:120 **Taller Basico de Escritura Creativa** 3 s.h.
Development of writing skills in Spanish through creative writing. Taught in Spanish. Prerequisite: 035:103 or equivalent.

035:141 **Spanish Conversation II** 3 s.h.
Development of conversational proficiency; improvement of listening, reading, and writing skills; cultural knowledge of several Spanish-speaking countries. Prerequisites: two courses taught in Spanish numbered above 035:100.

**Hispanic Linguistics**

035:121 **Introduction to Hispanic Linguistics** 3 s.h.
Basic linguistic theory as applied to analysis of Spanish language; systematic study of sound patterns, sentence construction, word formation; meanings, historical linguistics, sociolinguistics, psycholinguistics. Prerequisite: one Spanish course numbered above 035:100.

035:122 **Spanish Sound Structure** 3 s.h.
Articulation of Spanish sounds--description and practice; how Spanish sounds are organized into classes, relations among the different classes, how they are implemented in context, patterns they exhibit. Prerequisite: one Spanish course numbered above 035:100.

035:123 **Foundations in Sociolinguistics** 3 s.h.
Dialects, speech communities, variation, choosing a code, solidarity and politeness, language and gender, language planning. Prerequisite: one Spanish course numbered above 035:100.

**035:124 Introduction to Bilingualism** 3 s.h.
Spanish-English bilingualism in the United States; language usage, maintenance, attitudes, shift, transfer, loss; code-switching. Prerequisite: one Spanish course numbered above 035:100.

**035:126 Spanish Applied Linguistics** 3 s.h.
Concepts of linguistic analysis applied to Spanish; focus on problematic areas of Spanish grammar, lexicon, semantics; introduction to cross-cultural pragmatics; connections between language learning and technology and assessment; ideal for future teachers of Spanish. Prerequisite: 035:121 or equivalent.

**035:127 Social History of the Romance Languages** 3 s.h.
Evolution of Romance languages from Roman Empire to present; emphasis on the sociopolitical context in which spoken Latin of the Roman Empire evolved into Romance languages. Prerequisite: 035:121 or 035:123 or equivalent.

**035:128 Introduction to Spanish Language Acquisition** 3 s.h.
Basic principles of language acquisition theory applied to learning Spanish as a first or second language. Prerequisite: 035:121 or equivalent.

**035:129 Structure of the Spanish Language** 3 s.h.
Detailed analysis of sentence grammar, contrasting Spanish structures with English ones; topics include pronouns, subordinate and relative clauses, word order, types of Spanish-English constructions, characteristics of questions, negations, passives, and commands. Prerequisite: 035:121 or equivalent.

**Spanish American Literature and Culture**

**035:130 Spanish American Civilization** 3 s.h.
Pre-Columbian, colonial, modern periods; socioeconomic structure, form of government, culture. Prerequisite: one Spanish course numbered above 035:100.

**035:131 Contemporary Spanish American Fiction** 3 s.h.
Major 20th-century short-story writers and novelists (Borges, Cortázar, Fuentes, García-Márquez, Rulfo, etc.) through representative works. Prerequisite: one Spanish course numbered above 035:100.

**035:132 Spanish American Poetry** 3 s.h.
Poetry as a literary genre, short history of its development, early forms in Spanish America, poets from Modernism to present; readings from writers including Rubén Darío, Pablo Neruda, César Vallejo, Octavio Paz, J.L. Borges. Prerequisite: one Spanish course numbered above 035:100.

**035:134 Spanish American Short Story** 3 s.h.
Works by 19th- and 20th-century Spanish American writers; emphasis on reading strategies and historical, cultural, literary backgrounds. Prerequisite: one Spanish course numbered above 035:100.

**035:135 Latinos in the United States** 3 s.h.
Latina/o cultural practices and products as dynamic expressions that affirm, contest, resist and are shaped in and against the mappings of race, class, nation, gender, sexuality, colonialism. Prerequisite: one Spanish course numbered above 035:100.

**035:136 Culture and Language in the Andes** 3 s.h.
The Andean world; transformations wrought by arrival of Europeans; continuity, change in principles of organization with emphasis on indigenous responses to conquest and continued domination by non-Andeans. Prerequisite: one Spanish course numbered above 035:100.

**035:137 Introduction to Chicano Literature and Culture** 3 s.h.
Recent fiction and poetry by Chicano and Chicana writers; readings in Spanish and English. Taught in Spanish. Prerequisite: one Spanish literature or culture course numbered above 035:100.
035:140 Spanish American Literature of Fantasy  3 s.h.
Principal manifestations from 19th-century origins to culmination in 20th-century masterpieces; analysis. Prerequisite: one Spanish course numbered above 035:100.

035:142 Introduction to Caribbean Studies  3 s.h.
Diversity and unity of Caribbean culture; geography, history, culture; Hispanic, Francophone, and Anglophone Caribbean texts. Same as 187:142.

035:143 Cuban American Literature and Culture  3 s.h.
Experiences of Cuban exiles in the United States; emergence of a literature and culture based on sense of dispossession, marginality, and memory of island past. Taught in English. Prerequisite: 08G:001 or equivalent. GE: Cultural Diversity. Same as 048:196.

035:144 Latin American Women Writers  3 s.h.
Focus on 20th century; how Latin American women subjects view themselves through literature; textual practice specific to women; psychoanalytic approaches, contemporary feminist criticism. Prerequisite: one Spanish course numbered above 035:100. Same as 131:162.

035:145 Latin America Cinema  3 s.h.
Political, historical, aesthetic, and cultural issues in key films from Latin American national cinemas. Taught in English. Recommended: knowledge of Spanish. Prerequisite: one Spanish course numbered above 035:100 for Spanish major or one course numbered above 048:050. Same as 048:145.

035:147 Topics in National Literatures/Cultures  3 s.h.
Prerequisite: one Spanish course numbered above 035:100.

035:148 Topics in Cinema, Literature, and Society  3 s.h.
Concept of national cultures examined through major texts in literary and film history in one Latin American nation. Prerequisite: one Spanish course numbered above 035:100.

Spanish Literature and Culture

035:150 Spanish Civilization  3 s.h.
Political, religious, social, economic background; important cultural, literary movements. Prerequisite: one Spanish course numbered above 035:100.

035:151 Renaissance and Golden Age Literature  3 s.h.
Introduction to literary questions of 15th to 17th centuries in Spain; understanding of literary Spanish and cultural issues of the period—end of the feudal mind, beginning of individualism, poetry, emergence of theater, crisis of empire. Prerequisite: one Spanish course numbered above 035:100.

035:152 Romanticism and Revolution in Spain  3 s.h.
Spanish Romanticism as the cultural expression of social revolution in first half of 19th-century Spain. Taught in Spanish. Prerequisite: one Spanish course numbered above 035:100.

035:154 Hispanic Institute: Culture  3 s.h.
Overview of geography, history (political, economic, social), architecture, painting, music of Spain; readings, slides, video and audio cassettes, visits to local sites of cultural significance. Prerequisite: 035:012 or equivalent.

035:155 Hispanic Institute: Literature  3 s.h.
Introduction to poetry, narrative, and theater in Spanish literature; textural commentary and critical interpretations of major representative works of selected historical periods. Prerequisite: one Spanish course numbered above 035:100.

035:156 Spanish Literature of the Transition  3 s.h.
Literary production of the transition in post-Franco Spain; works by Carmen Martin Gaite, Luis Garcia Montero, Pedro Almodovar, others. Prerequisite: one Spanish literature course numbered above 035:100.

035:160 Medieval Spanish Literature in Context  3 s.h.
Introduction to Medieval Spanish literature, culture, history. Prerequisite: one Spanish literature course numbered above 035:100.

035:161 Modern Spanish Literature 3 s.h.
Works of the last 30 years of the 19th century, up to the outbreak of the Spanish Civil War; Realism, Naturalism, generation of 1898, generation of 1913, generation of 1927. Prerequisite: one Spanish course numbered above 035:100.

035:165 Advanced Spanish Grammar 3 s.h.
Problematic areas of vocabulary and grammar; systematic features of standard written international Spanish (norma culta); background and insight for teaching Spanish. Prerequisites: previous intermediate and advanced courses in Spanish, especially language and grammar.

035:168 Advanced Business Spanish 3 s.h.
Tools for effective business communication, building on concepts learned in 035:118; linguistic, sociolinguistic, practical skills for effective oral and written communication developed through discussion of business case studies, presentations, meetings; selected Spanish and Latin American companies examined through varied media, including news and Internet; role of transaction intermediaries in international trade. Prerequisite: 035:118.

035:169 Writing Narrative Journalism in Spanish 3 s.h.
In-depth interpretative journalistic writing on a range of topics and forms, including profiles, social and political issues and controversy, cultural affairs, education. Prerequisite: 035:119.

**Spanish Level 3 for Undergraduates**

Undergraduates should take the following courses during their last semesters of enrollment. These courses are also open to M.A. students. All of these courses require a research paper. Prerequisites vary.

035:170 Advanced Grammar Review 3 s.h.
Attention to problem areas of vocabulary and grammar; structured practice of realistic communication tasks; advanced level. Prerequisites: two courses in Spanish numbered above 035:102, one of which must be numbered above 035:115.

035:171 Pan-Caribbean Literary Currents 3 s.h.
Twentieth-century fiction, film, and cultural practices in the Hispanic, Francophone, and Anglophone Caribbean; cultural essays to complement literary readings; pan-Caribbean cultural practices—music and carnival celebrations. Taught in English. Prerequisite: (for 048:162) junior or senior standing. Prerequisites: (for 035:171) two literature courses. Same as 048:162.

035:172 Topics in Cultural Studies 3 s.h.
Prerequisites: one Spanish course numbered above 035:130.

035:173 Colonial Spanish American Literature 3 s.h.
Readings from the formative period of Spanish American culture; may include discovery and conquest, ethnicity and gender, dissent and popular resistance. Prerequisite: one Spanish literature course numbered above 035:130.

035:175 Cultural Identity in Caribbean Literature 3 s.h.
Main currents in 20th-century Hispanic Caribbean literature: *americanismo literario*, *poesía negra*, testimonial narrative centered on slavery and women’s fiction; Caribbean cultural context in music, humor, Afro-Caribbean rituals. Prerequisite: one Spanish literature course numbered above 035:130.

035:176 Latin American Studies Seminar 3 s.h.

035:178 Topics in Spanish American Literature 3 s.h.
Prerequisite: one Spanish literature course numbered above 035:130.
035:179 Islamic Cultural Presence in Spain
Islamic history and culture in the Iberian Peninsula from Middle Ages to present. Taught in Spanish. Prerequisites: two literature courses taught in Spanish numbered above 035:130. Same as 032:179.

035:180 Spanish Golden Age Fiction
Literature and society in first centuries of Spanish Modernity, Renaissance and Baroque periods, love and the self, alienation, utopias, the body and morals, cultural dimensions of genres. Prerequisite: one Spanish literature course numbered above 035:130.

035:181 Topics in Spanish Literature
Prerequisite: one Spanish literature course numbered above 035:130.

035:182 Society and Poetry: Spanish Lyric
Twentieth-century Spanish lyric poetry in its sociocultural context. Prerequisites: one Spanish literature course numbered above 035:130.

035:183 Don Quijote
Exploration of Cervantes' Don Quijote; sociohistorical context, questions of human existence, literary tradition, metafiction, influence of Don Quijote on novelists and filmmakers, critical reception of the text. Prerequisite: one literature course in Spanish numbered above 035:130.

035:184 Linguistic Aspects of Second Language Acquisition
Theoretical linguistic approaches to acquisition of Spanish as a second language. Prerequisite: 035:121 or equivalent.

035:185 Topics in Hispanic Linguistics
Prerequisite: 035:121 or equivalent.

035:186 Introduction to Spanish Syntax
Basic principles of transformational syntax as applied to analysis of Spanish syntactic structure; extensive syntactic analysis. Prerequisite: 035:121 or equivalent. Same as 164:186.

035:187 Spanish Word Formation
Basic principles of morphology (derivational and inflectional) applied to analysis of Spanish complex word formation; extensive practice in morphological analysis. Prerequisite: 035:121 or equivalent.

035:188 History of the Spanish Language
Development of phonetic, morphological, syntactical properties of the Spanish language from its Latin roots; emphasis on internal history and process of expansion from a minor dialect (Castilian) to a significant world language. Prerequisite: 035:121 or equivalent.

035:189 Introduction to Spanish Phonology
Sound patterns of Spanish; how various theoretical approaches solve basic problems in Spanish phonology; identification of linguistic universals, how they are manifested in the sound structure of Spanish. Prerequisite: 035:121 or 035:122 or equivalent. Same as 164:189.

035:190 Chicano Cinema
History of Chicano independent and industry film and television production since the Chicano political and cultural movement began in the 1960s. Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course. Same as 048:190.

035:191 Topics in Latin American Cinema
Taught in English. Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course. Same as 048:178.

035:192 Topics in Film Studies
Prerequisite: one Spanish literature or culture course numbered above 035:130 or one film studies course.

035:193 Sexualities in Hispanic Cultures
Historical, social, and theoretical concepts of sexuality in Spanish, Spanish American, and U.S. Latino/a cultures; constructions of gender and sexual identity. Taught in English. Prerequisite: 154:110 or consent of instructor. Same as 154:185.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>035:194</td>
<td>Topics in Literary Studies</td>
<td>3 s.h.</td>
<td>at least one Spanish literature course numbered above 035:130.</td>
</tr>
<tr>
<td>035:195</td>
<td>Senior Seminar</td>
<td>3 s.h.</td>
<td>Analysis of works of a major author or theme from the Latin American or the Peninsular traditions or on a focused set of problems in Hispanic linguistics. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>035:196</td>
<td>Taller Avanzado de Escritura Creativa</td>
<td>3 s.h.</td>
<td>In-depth consideration of characters, dialog, conflict, setting, point of view, other fundamentals of fiction; experience writing short stories and other pieces, with class discussion; fictional texts by renowned writers, authors' essays on their own creative process; narrative strategies of short stories, songs, painting, films. Prerequisite: 035:120 or two Spanish literature courses or consent of instructor.</td>
</tr>
<tr>
<td>035:198</td>
<td>Honors: Research and Thesis</td>
<td>2-3 s.h.</td>
<td>Prerequisite: honors standing.</td>
</tr>
<tr>
<td>035:199</td>
<td>Special Work</td>
<td>1-3 s.h.</td>
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</table>

**Spanish, Primarily for Graduate Students**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>035:200</td>
<td>Foreign Language Teaching Methods</td>
<td>3 s.h.</td>
<td>Readings in pedagogical theory and practice and second language acquisition; experience designing activities for teaching and assessment, with critiques based on current theories and approaches; development of reflective practices toward one's own language teaching. Same as 164:260.</td>
</tr>
<tr>
<td>035:201</td>
<td>Second Language Acquisition Research and Theory I</td>
<td>3 s.h.</td>
<td>Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 009:237, 039:200, 164:201, 39J:201.</td>
</tr>
<tr>
<td>035:202</td>
<td>Second Language Acquisition Research and Theory II</td>
<td>3 s.h.</td>
<td>Continuation of 164:201. Prerequisite: 164:201 or consent of instructor. Same as 039:201, 164:202.</td>
</tr>
<tr>
<td>035:204</td>
<td>Introduction to Spanish Linguistic Analysis</td>
<td>3 s.h.</td>
<td>Introduction to goals and concepts of generative linguistics as applied to Spanish: main subfields of linguistics; skill development in linguistic analysis, argumentation.</td>
</tr>
<tr>
<td>035:206</td>
<td>Spanish Language Acquisition</td>
<td>3 s.h.</td>
<td>Theoretical linguistic approaches to monolingual, bilingual, and second language acquisition of Spanish and Portuguese. Prerequisite: 035:204 or equivalent. Same as 164:261.</td>
</tr>
<tr>
<td>035:207</td>
<td>Topics in Comparative Romance Linguistics</td>
<td>3 s.h.</td>
<td>Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 103:262, 164:262, 20E:201.</td>
</tr>
<tr>
<td>035:209</td>
<td>Spanish Phonology</td>
<td>3 s.h.</td>
<td>Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Prerequisite: phonology or linguistics course. Same as 164:263.</td>
</tr>
<tr>
<td>035:210</td>
<td>Spanish Syntax</td>
<td>3 s.h.</td>
<td>Spanish syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argumentation. Prerequisite: 035:204 or equivalent. Recommended: additional course work in syntax. Same as 164:264.</td>
</tr>
</tbody>
</table>
035:211 Topics in Hispanic Linguistics 3 s.h.
Taught in Spanish or English. Repeatable.

035:212 Multimedia and Second Language Acquisition 3 s.h.
Foreign language multimedia in the context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control, and acquisition of vocabulary, grammar, and culture; multimedia development project. Prerequisite: foreign language teaching methodology course or consent of instructor. Same as 009:238, 013:253, 164:211.

035:214 Advanced CALL Curriculum Development 3 s.h.
Advanced instruction in a variety of software and hardware tools for development of multimedia computer-assisted language learning (CALL) courseware; students develop software for a General Education Program or third-year language course in collaboration with course supervisor. Prerequisite: 164:212. Same as 009:239, 013:254, 164:214.

035:225 Topics in Literary Studies 3 s.h.
Repeatable.

035:226 Topics in Cultural Studies 3 s.h.
Repeatable.

035:227 Topics in Second Language Acquisition: Writing 3 s.h.
Theory, pedagogy, research, and assessment in second language writing. Taught in English. Same as 010:275, 164:227.

035:228 Topics in Second Language Acquisition: Speaking 3 s.h.
Theory, pedagogy, research, and assessment in second language speaking. Same as 009:236, 164:221.

035:230 Spanish American Narrative: Nineteenth Century 3 s.h.
Review of narrative, with emphasis on Romanticism.

035:231 Spanish American Narrative: Modern and Regional 3 s.h.

035:233 Spanish American Poetry of the 20th Century 3 s.h.
Principal works of vanguard poets and characteristics of their poetry; Vicente Huidobro, César Vallejo, Pablo Neruda, Jorge Luis Borges, Octavio Paz, Nicanor Parra.

035:234 Spanish American Poetry Before 1918 3 s.h.
European and Spanish American forerunners of modernism; modernistic poetic motifs in verse and prose; early modernists; Rubén Darío and flowering of modernism; death and transfiguration of the swan.

035:236 Contemporary Spanish American Narrative 3 s.h.
Narrative from mid-20th century to present; emphasis on the Boom, post-Boom.

Same as 016:288.

035:248 Topics in Film Studies 3 s.h.
Repeatable.

035:250 Medieval Spanish Literature 3 s.h.
Critical reading of canonical medieval texts in their cultural context; application of modern theory to medieval texts; works such as El Poema del Cid, El Romancero Viejo, Milagros de Nuestra Señora, El Conde Lucanor, El Libro de Buen Amor.

035:255 Spanish Renaissance and Baroque Literature 3 s.h.
Critical analysis of social, moral, political function of literature in early modern Spain; Renaissance and Baroque poetry; La Celestina; pastoral literature; Don Quijote; narratives of the court; modern subjectivity; the question of genre.

035:257 Spanish Romanticism 3 s.h.
Spanish literature and culture 1814-1850, in context of political and economic history.

035:258 Nineteenth-Century Spanish Novel
Development of the novel in Spain, from Romanticism to the Generation of 1898; novel's role in helping to consolidate ideologies and structures of 19th-century bourgeois society.

035:259 Contemporary Spanish Fiction
The post-Franco novel in Spain; literary "postmodernism" and relationships between Spanish literature, politics, and society since 1975; representative significant works.

035:260 Contemporary Non-Castilian Narrative Spain
Readings in Spanish of novels and short stories written in another language of the Spanish state or by a member of one of Spain's non-Castilian historic nationalities.

035:264 Contemporary Spanish Poetry
Poetry on the Spanish literary scene circa 1968; authors' reactions to predecessors, their connections with foreign traditions, metapoetry, the aesthetics of culturalism.

035:269 Topics in Spanish American Literature
Repeatable.

035:270 Topics in Spanish Literature
Repeatable.

035:271 Crossing Borders Proseminar

035:273 Crossing Borders Seminar

035:278 Topics in Spanish American Literature
Repeatable with different topics.

035:281 Topics in Spanish Literature
Repeatable with different topics.

035:282 Marxist Literary Criticism
Contemporary Western Marxist literary and cultural theory; major thinkers in the Marxist tradition--Georg Lukacs, Louis Althusser, Terry Eagleton, Fredric Jameson, Juan Carlos Rodriguez; readings on topics in Marxist literary and cultural criticism--Marxism and the media, dialectics, Lenin. Taught in Spanish and English.

035:286 Colonial Spanish American Literature
Chronicles of the conquest: close reading with focus on role of writing and operations of "othering"; balance between critical secondary sources and primary sources.

035:288 Special Work
Prerequisite: consent of instructor.

035:298 Thesis
arr.

035:300 Seminar: Spanish Linguistics
Repeatable with different topics. Same as 103:300.

035:302 Nineteenth-Century Spanish American Literature
Repeatable with different topics.

035:303 Twentieth-Century Spanish American Literature
Repeatable with different topics.

035:304 Medieval Spanish Literature
3 s.h.
### Spanish and Portuguese

**035:305 Seminar: Spanish Golden Age Literature**  
Repeatable with different topics.  
3 s.h.

**035:306 Seminar: Nineteenth-Century Spanish Literature**  
Repeatable with different topics.  
3 s.h.

**035:307 Seminar: Modern and Contemporary Spanish Literature**  
Repeatable with different topics.  
3 s.h.

#### Portuguese for Undergraduate and Graduate Students

**038:020 Contemporary Brazilian Narrative**  
Novels, short stories, other narrative forms, beginning with neorealists of 1930s; cultural background of different periods, innovative literary approaches of writers through films, other media. Prerequisite: 08G:001 or consent of instructor. GE: Foreign Civilization & Culture, Humanities.  
3 s.h.

**038:053 Special Work**  
Prerequisite: consent of instructor.  
arr.

**038:070 Introduction to Latin American Studies**  
Cultures of Latin American countries with emphasis on cultural history and cultural production; interdisciplinary survey. Same as 035:070, 130:070, 187:070.  
3 s.h.

**038:077 Brazil: The Erotic/Exotic Lure**  
Popular culture (carnaval, soccer, lay and religious festivities), the land, and the people. Taught in English.  
3 s.h.

**038:100 Accelerated Elementary Portuguese**  
First-year course in one semester; comprehending, speaking, reading, writing modern Portuguese; emphasis on speaking. GE: Foreign Language Second Level Proficiency.  
0-5 s.h.

**038:101 Accelerated Intermediate Portuguese**  
Second-year course in one semester; reading comprehension, oral and writing skills; grammar review. Prerequisite: 038:100 or equivalent. GE: Foreign Language Fourth Level Proficiency.  
0-5 s.h.

**038:102 Portuguese for Spanish Speakers**  
Systematic differences and similarities between Spanish and Portuguese; emphasis on reading, writing. Prerequisite: seven courses numbered above 035:100 or consent of instructor.  
3 s.h.

**038:103 Composition and Conversation**  
Speaking, writing skills through discussion and oral presentations, grammar and vocabulary review, composition; materials from current Brazilian newspapers, magazines, short fiction, telenovelas and films. Prerequisite: 038:101 or equivalent.  
3 s.h.

**038:104 Introduction to Literary Analysis**  
Basic concepts of genre, literary periods, narrative and literary analysis; close reading of literary texts in Portuguese; tools for improving reading and writing skills. Taught in Portuguese. Prerequisite: 038:101 or equivalent.  
3 s.h.

**038:105 Brazilian Literature Before 1900**  
Beginnings through end of 19th century; representative readings from all periods and genres; focus on works of major Brazilian authors such as Gonzaga, Alencar, Castro Alves, Machado de Assis, Cruz e Sousa. Taught in Portuguese. Prerequisite: 038:101 or equivalent.  
3 s.h.

**038:106 Brazilian Literature After 1900**  
3 s.h.
Twentieth-century poetry, novels, short stories; modernism, regionalism, generation of '45, concretism; works of principal figures behind these movements; focus on major writers of modern period, such as Lima Barreto, Mário de Andrade, Drummond, Jorge Amado, Cabral de Melo Neto, Guimarães Rosa, Lispector, and contemporary writers. Taught in Portuguese. Prerequisite: 038:101 or equivalent.

038:107 Introduction to Portuguese Literature 3 s.h.
Representative readings including Portuguese lyric and epic poetry, Renaissance theater, romantic and realist novels, 20th-century symbolist verse, neorealist prose. Taught in Portuguese. Prerequisite: 038:101 or equivalent.

038:112 Topics in Luso-Brazilian Literature 3 s.h.
Genres, themes, movements. Taught in Portuguese. Prerequisite: one Portuguese or Brazilian literature course or consent of instructor.

038:115 Writing Brazil in the U.S. 3 s.h.
Representation of the Amazon region and Rio de Janeiro in travel narratives, novels, diaries, journals, letters, poems, and essays by American authors published in the United States. Taught in English.

038:120 Topics in Luso-Brazilian Culture 3 s.h.
Comparative analysis of Brazil and Portuguese-speaking countries in Africa; colonization, independence, religion, music, language. Taught in Portuguese. Prerequisite: 038:101 or equivalent or consent of instructor.

038:176 Latin American Studies Seminar 3 s.h.

038:179 Special Work 1-3 s.h.
Prerequisite: consent of instructor.

038:198 Honors Research and Thesis 2-3 s.h.
Prerequisite: honors standing.

038:279 Special Work arr.
Prerequisite: consent of instructor.
During the 20th century, probability and statistics developed into an important scientific discipline essential to all fields of study that rely on information obtained from data. Author H.G. Wells acknowledged the importance of statistical reasoning when he stated, “Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write.”

Today's world is bombarded with numerical information. Informed decisions rely on the ability to separate fact from fiction by applying valid statistical analyses. Statisticians can provide crucial guidance in determining what information is reliable and which predictions may be trusted. They often help search for clues to the solution of a scientific mystery and sometimes keep investigators from being misled by false impressions.

The work of a statistician may range from the theoretical (developing new methodologies and statistical theory) to the applied (working with scientists and decision makers to collect, analyze, and interpret data). Regardless of the areas in which they work, statisticians need a strong background in mathematics and computer use. Because uncertainty and data arise in many settings, statisticians have the opportunity to work on a variety of projects in industry, education, government, and research. Thousands of statisticians work in medicine, law, agriculture, public policy, marketing, manufacturing, engineering, and other fields in the social and natural sciences. The diversity of applications is an exciting aspect of the field and is one reason why the demand for well-trained statisticians continues to be strong.

An actuary is a business executive, professionally trained in the mathematical sciences. Actuaries specialize in the evaluation of financial risk--most often in the context of life, health, and casualty insurance, where they design, analyze, and refine various programs to meet the insurance needs of society. Most actuaries are employed by insurance companies, where they have responsibilities for all phases of the development and maintenance of their company's products. They have considerable influence on the financial soundness of their company through work in pricing insurance policies and in compiling data for financial statements.

Many actuaries are employed as consultants. Their actuarial services are used by smaller insurance companies and by individual employers who need actuarial guidance in establishing insurance and retirement programs for their employees. A growing number of actuaries work in the areas of asset/liability management and risk management. Some of these actuaries are employed by investment and consulting firms; others are employed by insurance companies. Actuaries have been called financial architects and social mathematicians, because their combined analytical and business skills help to solve a growing variety of financial and social problems. The actuarial profession is a demanding yet rewarding career choice.

Graduates of the Department of Statistics and Actuarial Science have enjoyed great success in finding employment at all levels of the profession's fields.

Undergraduate Programs

The department offers a Bachelor of Science in statistics and in actuarial science, and a minor in statistics.

Bachelor of Science in Statistics

The Bachelor of Science in statistics requires a minimum of 120 s.h., including 46 s.h. of work for the major. Students complete 10 core courses that provide essential instruction in statistical methods, applications, and theory. In addition, they concentrate on their particular interest areas by choosing one of the following three emphasis tracks, in which they complete at least four courses.

The statistics in business, industry, government, and research track emphasizes statistical applications and data analysis. It is appropriate for students interested in careers as applied statisticians.
The statistical computing track emphasizes statistical applications and requires additional course work in computing. It prepares students for statistical work that requires computing expertise for data management, analysis, and reporting.

The mathematics statistics track provides a solid foundation in statistical theory and applications. It requires additional course work in mathematics and is good preparation for graduate study in statistics.

Students must complete the College of Liberal Arts and Sciences General Education Program.

The major in statistics requires the following course work.

CORE COURSES

All students complete the following.

Computer Science

22C:016 Computer Science I: Fundamentals 4 s.h.

Mathematics

22M:025-22M:026 Calculus I-II 8 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.

Statistics

22S:030 Statistical Methods and Computing 3 s.h.
22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:152 Applied Linear Regression 3 s.h.
22S:158 Experimental Design and Analysis 3 s.h.
171:173 Design of Sample Surveys 3 s.h.


Emphasis Tracks

Students take four courses from one of the following tracks.

STATISTICS IN BUSINESS, INDUSTRY, GOVERNMENT, AND RESEARCH

171:164 Research Data Management 3 s.h.

Three of these:

22S:133 Quality Control 3 s.h.
22S:138 Bayesian Statistics 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:173 Statistical Consulting 3 s.h.
171:174/22S:160 Introductory Longitudinal Data Analysis 3 s.h.

STATISTICAL COMPUTING

22C:022 Object-Oriented Software Development 4 s.h.
171:164 Research Data Management 3 s.h.
Two of these:

- 22C:072 Elementary Numerical Analysis 3 s.h.
- 22S:138 Bayesian Statistics 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:161 Applied Multivariate Analysis 3 s.h.
- 22S:162 Applied Generalized Regression 3 s.h.
- 22S:166 Computing in Statistics 3 s.h.
- 22S:167 Environmental and Spatial Statistics 3 s.h.
- 22S:168 Intermediate Experimental Design 3 s.h.
- 22S:173 Statistical Consulting 3 s.h.
- 171:174/22S:160 Introductory Longitudinal Data Analysis 3 s.h.

**MATHEMATICAL STATISTICS**

- 22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.

One of these:

- 22M:028 Calculus III 4 s.h.
- 22M:056 Fundamental Properties of Spaces and Functions II 4 s.h.

Two of these:

- 22S:138 Bayesian Statistics 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:161 Applied Multivariate Analysis 3 s.h.
- 22S:162 Applied Generalized Regression 3 s.h.
- 22S:167 Environmental and Spatial Statistics 3 s.h.
- 22S:168 Intermediate Experimental Design 3 s.h.
- 22S:173 Statistical Consulting 3 s.h.

If 22S:153 Mathematical Statistics I and 22S:154 Mathematical Statistics II are used to satisfy the core requirements, they may not be used to satisfy the track requirement.

**Bachelor of Science in Actuarial Science**

The Bachelor of Science in actuarial science requires a minimum of 120 s.h., including 59 s.h. of work for the major. The program prepares students for careers as actuaries. It also helps them learn material that is included in professional examinations administered by the Casualty Actuarial Society and/or the Society of Actuaries, which actuaries must pass in order to achieve professional status. The examinations are challenging; mastering the examination material requires tenacity and a substantial commitment of time.

Students take a variety of actuarial science courses. In addition, preparation for business aspects of the actuarial profession requires the study of accounting, law, finance, insurance, and economics. Courses relating to communication skills, such as writing and speaking, are also important.

Students must complete the College of Liberal Arts and Sciences General Education Program.

Due to the demanding nature of the actuarial science major and the difficulty of the professional examinations, the department maintains a selective admission program for actuarial science. Students must apply and be admitted to the major.

Students interested in becoming actuaries should declare an interest in actuarial science as their major when they enter the University. Ordinarily, students apply for admission to the actuarial science major in the fall semester of their sophomore year, after they have taken 22M:055 Fundamental Properties of Spaces and Functions I and 22S:130 Introduction to Mathematical Statistics I. Students should apply no later than the end of the spring semester of their junior year.
Students admitted to the actuarial science major usually have completed at least 40 s.h. at the University or at another postsecondary institution, including a three- or four-course calculus sequence, a course in linear algebra, and a calculus-based course in probability and statistics. The admission decision is based on the student’s performance in these courses and other courses relevant to success in the major. The student’s grades from semester to semester are also considered. ACT or SAT scores are considered in evaluating transfer students. Factors such as work ethic, enthusiasm, and commitment may be considered.

Students who have a thorough understanding of mathematics, as reflected by their performance in prerequisite math course work, tend to be most successful in actuarial science.

For application forms and more information about selective admission, contact the Department of Statistics and Actuarial Science.

Permission to substitute course work taken at another institution for required courses at Iowa is decided case-by-case.

The B.S. in actuarial science requires the following course work.

**Computer Science**

22C:016 Computer Science I: Fundamentals 4 s.h.

**Economics**

06E:001 Principles of Microeconomics 4 s.h.
06E:002 Principles of Macroeconomics 4 s.h.

**Mathematics**

22M:025-22M:026 Calculus I-II 8 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
22M:055-22M:056 Fundamental Properties of Spaces and Functions I-II 7 s.h.

**Statistics and Actuarial Science**

22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.
22S:174 Quantitative Methods for Actuaries 3 s.h.
22S:175 Actuarial Models 3 s.h.
22S:180 Mathematics of Finance I 4 s.h.
22S:181-22S:182 Life Contingencies I-II 6 s.h.

In exceptional cases, the advisor may grant permission to waive 22S:130 Introduction to Mathematical Statistics I and/or 22S:131 Introduction to Mathematical Statistics II.

**Sample Schedule**

The following is a sample schedule for completing actuarial science degree requirements.

**FIRST YEAR**

**Fall Semester**

06E:001 Principles of Microeconomics 4 s.h.
22C:016 Computer Science I: Fundamentals 4 s.h.
22M:025 Calculus I 4 s.h.

**Spring Semester**

06E:002 Principles of Macroeconomics 4 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
22M:026 Calculus II 4 s.h.
SECOND YEAR

Fall Semester

22M:055 Fundamental Properties of Spaces and Functions I 3 s.h.
22S:130 Introduction to Mathematical Statistics I 3 s.h.

Spring Semester

22M:056 Fundamental Properties of Spaces and Functions II 4 s.h.
22S:131 Introduction to Mathematical Statistics II 3 s.h.
22S:180 Mathematics of Finance I 4 s.h.

THIRD YEAR

Fall Semester

22S:153 Mathematical Statistics I 3 s.h.
22S:174 Quantitative Methods for Actuaries 3 s.h.

Spring Semester

22S:154 Mathematical Statistics II 3 s.h.
22S:175 Actuarial Models 3 s.h.
22S:181 Life Contingencies I 3 s.h.

FOURTH YEAR

Fall Semester

22S:182 Life Contingencies II 3 s.h.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Much of the work in the discipline is sequential, so students must begin requirements for the major as soon as possible. Individual study plans must be made carefully. Students who first enroll for a spring semester must consult the department to confirm a four-year plan.

B.S. in Statistics

Courses must be taken in sequence, so students must begin work early.

Before the third semester begins: three courses in the major, including 22M:025 Calculus I, 22M:026 Calculus II, and 22S:030 Statistical Methods and Computing; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: four courses in the major and at least one-half of the semester hours required for graduation

Before the seventh semester begins: seven or eight courses in the major and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: nine or ten courses in the major

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate
B.S. in Actuarial Science

Before the third semester begins: 22M:025 Calculus I, 22M:026 Calculus II, 22M:027 Introduction to Linear Algebra, and at least one-quarter of the semester hours required for graduation


Before the eighth semester begins: 22S:182 Life Contingencies II

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified undergraduate students may earn a degree with honors.

To graduate with honors in statistics or in actuarial science, a student must be a member of the University of Iowa Honors Program which requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

Honors students in statistics also must have a g.p.a. of at least 3.40 in departmental courses required for the major and must complete an honors project or suitable alternative. A student planning to graduate with honors should contact the statistics honors advisor.

Honors students in actuarial science also must have a g.p.a. of at least 3.40 in all departmental courses numbered 120 and above and a cumulative University of Iowa g.p.a. of at least 3.40. They must complete the following three courses in addition to the requirements for the B.S.

22S:171 Topics in Actuarial Science 3 s.h.
22S:176 Credibility and Loss Distributions 3 s.h.
22S:183 Mathematics of Finance II 3 s.h.

Minor

The minor in statistics requires a minimum of 15 s.h. in statistics courses, including 12 s.h. in 100-level courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. The minor requires the following courses:

Two of these:
22S:030 Statistical Methods and Computing 3 s.h.
or
22S:105 Statistical Methods and Computing 3 s.h.

22S:152 Applied Linear Regression 3 s.h.

Three of these:
22S:120 Probability and Statistics 4 s.h.
or
22S:130 Introduction to Mathematical Statistics I 3 s.h.

22S:131 Introduction to Mathematical Statistics II 3 s.h.
22S:133 Quality Control 3 s.h.
22S:138 Bayesian Statistics 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
There is no minor in actuarial science.

Graduate Programs

The department offers a Master of Science in statistics, with and without thesis; and a Master of Science in statistics with a subtrack in actuarial science, without thesis. It also offers a Doctor of Philosophy in statistics.

Master of Science

The Master of Science in statistics requires a minimum of 34 s.h. of graduate credit, with or without thesis. It prepares students for careers as professional statisticians or for entry into the Ph.D. program. The curriculum includes a solid foundation in statistical computing, regression analysis, experimental design, and mathematical statistics, plus electives in statistical methods and/or theory. Students have the opportunity to concentrate on theory, applications, or a combination of the two.

M.S. students may choose to write a thesis, which substitutes for two elective courses.

Each M.S. nonthesis student has a comprehensive exam committee of three or four faculty members, which is responsible for recommending action on the student's degree. The recommendation usually is based on two written examinations over topics covered in the required courses.

M.S. thesis students usually have two separate committees responsible for recommending action on their degrees. The recommendation of the thesis committee usually is based on an oral defense of the thesis, although it also may be based on a single written examination over topics covered in the student's program of study. The recommendation of the comprehensive exam committee usually is based on two written examinations over topics covered in the required courses.

Thesis Program

The M.S. in statistics with thesis requires the following course work. A computer programming proficiency test is administered early in the first semester. Students who display inadequate programming skills may be required to take an additional programming course.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:197 Readings in Statistics and 22S:299 Reading Research.

22S:164-22S:165 Applied Statistics I-II 7 s.h.
22S:166 Computing in Statistics 3 s.h.
22S:173 Statistical Consulting 3 s.h.
22S:193-22S:194 Statistical Inference I-II 6 s.h.
22S:195 Probability and Stochastic Processes I 3 s.h.

At least two of these:

22S:138 Bayesian Statistics 3 s.h.
22S:156 Applied Time Series Analysis 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:162 Applied Generalized Regression 3 s.h.
22S:163 Nonparametric Statistical Methods 3 s.h.
22S:167 Environmental and Spatial Statistics 3 s.h.
22S:168 Intermediate Experimental Design 3 s.h.
22S:190 Mathematical Methods for Statistics 3 s.h.
22S:196 Probability and Stochastic Processes II 3 s.h.
Any 200-level statistics course
An elective approved by the advisor
The typical thesis is a statistical presentation of the results of a meaningful research project in another field, or a study of the characteristics of a new statistical method. The thesis work is directed by a supervising professor.

**Nonthesis Program**

The following course work is required for the M.S. in statistics without thesis. A computer programming proficiency test is administered early in the first semester. Students who display inadequate programming skills may be required to take an additional programming course.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:197 Readings in Statistics and 22S:299 Reading Research.

- 22S:166 Computing in Statistics 3 s.h.
- 22S:173 Statistical Consulting 3 s.h.
- 22S:193-22S:194 Statistical Inference I-II 6 s.h.
- 22S:195 Probability and Stochastic Processes I 3 s.h.

At least four of these:

- 22S:138 Bayesian Statistics 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:161 Applied Multivariate Analysis 3 s.h.
- 22S:162 Applied Generalized Regression 3 s.h.
- 22S:163 Nonparametric Statistical Methods 3 s.h.
- 22S:167 Environmental and Spatial Statistics 3 s.h.
- 22S:168 Intermediate Experimental Design 3 s.h.
- 22S:190 Mathematical Methods for Statistics 3 s.h.
- 22S:196 Probability and Stochastic Processes II 3 s.h.
- Any 200-level statistics course
- An elective approved by the advisor

**M.S. with Actuarial Science Subtrack**

The Master of Science in statistics with actuarial science subtrack requires 36 s.h. of graduate credit. It is offered without thesis. The program prepares students for actuarial careers by emphasizing the theory that underlies risk processes and the application of this theory to practical problems of insurance pricing and management. The required course work helps students prepare for the professional examinations administered by the Casualty Actuarial Society and/or the Society of Actuaries.

Each M.S. student has a committee of three or four members, which is responsible for recommending action on the student's degree. The committee's recommendation usually is based on two written examinations over topics covered in the required program.

The M.S. in statistics with actuarial science subtrack requires the following course work.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:197 Readings in Statistics and 22S:299 Reading Research.

One of these sequences:

- 22S:193-22S:194 Statistical Inference I-II (for well-prepared students) 6 s.h.

All of these:

- 22S:150 Regression Time Series and Forecasting 3 s.h.
- 22S:171 Topics in Actuarial Science 3 s.h.
- 22S:174 Quantitative Methods for Actuaries 3 s.h.
- 22S:175 Actuarial Models 3 s.h.
- 22S:176 Credibility and Loss Distributions 3 s.h.
- 22S:180 Mathematics of Finance I 4 s.h.
Doctor of Philosophy in Statistics

The Doctor of Philosophy in statistics requires a minimum of 72 s.h. of graduate credit, including work completed in the M.S. program. The program prepares students for careers in research, applications, and teaching.

All Ph.D. students must pass comprehensive exams and write a dissertation. The program takes about three years to complete after the M.S. has been granted. Ph.D. students choose one of four concentration areas for their course work: biostatistics; probability/mathematical statistics; statistical modeling; and actuarial science/financial mathematics.

Biostatistics emphasizes exposure to various biostatistical methods, such as survival analysis, categorical data analysis, and longitudinal data analysis. It prepares students for consulting and other positions in industry.

Probability/mathematical statistics emphasizes a broad, solid foundation in techniques and underpinnings of mathematical statistics. Its focus on breadth and depth is intended to produce well-rounded, knowledgeable scholars. It is excellent preparation for academic positions in mathematical statistics and industrial or government positions that require broadly trained statisticians with a strong understanding of statistical theory.

Statistical modeling emphasizes the theory and application of a broad array of statistical models, such as linear, generalized linear, nonlinear, categorical, spatial, correlated response, and nonparametric regression models. This concentration area prepares students to specify and choose appropriate models; fit the models using available statistical software; and make sound statistical conclusions and interpretive statements. It is excellent preparation for students interested in academic, industrial, or government positions that involve data modeling and analysis.

Actuarial science/financial mathematics emphasizes the theory of actuarial science, finance, and risk management. It is excellent preparation for academic positions in universities that offer actuarial science programs or for positions in the insurance, pension, and financial industries.

The actuarial science/financial mathematics program is highly mathematical and selective. Most students are admitted after earning an M.S. in statistics with actuarial science subtrack at The University of Iowa.

The Ph.D. in statistics requires the following course work.

Each semester in which a graduate student registers for at least 6 s.h., he or she must include at least one 2 s.h. course offered by the Department of Statistics and Actuarial Science, excluding 22S:197 Readings in Statistics and 22S:299 Reading Research.

CORE COURSES

  7 s.h.
- 22S:166 Computing in Statistics  
  3 s.h.
- 22S:173 Statistical Consulting  
  3 s.h.
- 22S:190 Mathematical Methods for Statistics  
  3 s.h.
- 22S:193-22S:194 Statistical Inference I-II  
  6 s.h.
- 22S:195 Probability and Stochastic Processes I  
  3 s.h.
  6 s.h.
- 22S:253-22S:254 Advanced Inference I-II  
  6 s.h.
- 22S:255 Linear Models  
  4 s.h.
- 22S:299 Reading Research (at least 18 s.h.)  
  arr.

At least 2 s.h. of 22S:291, 22S:293, or 22S:295 (seminars)

CONCENTRATION AREA

Students take at least four courses in one of the following concentration areas. At least two of these must be 200-level courses.

Biostatistics

- 22S:138 Bayesian Statistics  
  3 s.h.
- 22S:161 Applied Multivariate Analysis  
  3 s.h.
- 22S:162 Applied Generalized Regression  
  3 s.h.
- 22S:167 Environmental and Spatial Statistics  
  3 s.h.
**Statistics and Actuarial Science**

### Analysis of Categorical Data
- 22S:220 Analysis of Categorical Data 3 s.h.
- 22S:225 Survival Data Analysis 3 s.h.
- 171:241 Applied Categorical Data Analysis 3 s.h.
- 171:264 Longitudinal Data Analysis 3 s.h.
- 185:274 Theory of Statistical Genetics 3 s.h.

### Survival Data Analysis
- 22S:225 Survival Data Analysis 3 s.h.
- 171:241 Applied Categorical Data Analysis 3 s.h.
- 171:264 Longitudinal Data Analysis 3 s.h.
- 185:274 Theory of Statistical Genetics 3 s.h.

### Probability/Mathematical Statistics
- 22S:196 Probability and Stochastic Processes II 3 s.h.
- 22S:235 Time Series Analysis 3 s.h.
- 22S:238 Bayesian Analysis 3 s.h.
- 22S:256 Multivariate Analysis 3 s.h.

### Statistical Modeling
- 22S:138 Bayesian Statistics 3 s.h.
- 22S:156 Applied Time Series Analysis 3 s.h.
- 22S:161 Applied Multivariate Analysis 3 s.h.
- 22S:162 Applied Generalized Regression 3 s.h.
- 22S:167 Environmental and Spatial Statistics 3 s.h.
- 22S:168 Intermediate Experimental Design 3 s.h.
- 22S:220 Analysis of Categorical Data 3 s.h.
- 22S:235 Time Series Analysis 3 s.h.
- 22S:238 Bayesian Analysis 3 s.h.
- 22S:248 Computer Intensive Statistics 3 s.h.

### Actuarial Science/Financial Mathematics
- 06F:225 Finance Theory I 3 s.h.
- 06F:227 Finance Theory II 3 s.h.
- 22S:196 Probability and Stochastic Processes II 3 s.h.
- 22S:235 Time Series Analysis 3 s.h.
- 22S:273 Advanced Topics in Actuarial Science 3 s.h.

### OTHER COURSE WORK
During the graduate program, students may take course work or seminars in other departments to achieve the Ph.D. program's auxiliary goals: to relate an area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computing equipment, or to learn the language skills needed to read foreign scientific journals and respond in personal contacts with foreign scholars.

### COMPREHENSIVE EXAM
Ph.D. students take a comprehensive examination after completing most of the course work on their approved plan of study, typically during the third year of graduate study.

The comprehensive examination consists of a written core examination and an oral examination on statistical inference, linear models, and probability. These topics are generally covered in 22S:193 Statistical Inference I, 22S:194 Statistical Inference II, 22S:195 Probability and Stochastic Processes I, 22S:203 Foundations of Probability I, 22S:253 Advanced Inference I, and 22S:255 Linear Models. Study guides for the core examination are available from the department. Ph.D. students in the actuarial science track may qualify to take an exam designed by their advisor and approved by the director of graduate studies.

A program that does not conform to the prescribed requirements but is of high quality may be approved by the department chair.

### Financial Support
Funds are available to help support outstanding applicants. Fellowships, teaching assistantships, and research assistantships provide an attractive stipend plus resident tuition status and tuition scholarships for students who are...
appointed at least one-quarter time. In some cases, full tuition waivers are granted.

Students who wish to be considered for financial assistance for their third year in the program should request a Ph.D. candidacy review no later than the spring semester of their second year.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Facilities**

The Department of Statistics and Actuarial Science is housed in Schaeffer Hall, adjacent to Old Capitol, a National Historic Landmark and the center of campus. The department operates two computer labs in Schaeffer Hall. One, which also is used as an electronic classroom, contains 30 IBM PCs. The second houses 18 high-end UNIX workstations. Students use these labs for both class work and research.

**Statistics and Actuarial Science Courses**

**Primarily for Undergraduates**

Once students have earned credit in a Department of Statistics and Actuarial Science course numbered above 105, they cannot earn credit in one numbered below 105. Students may earn credit for only two of these: 22S:002 Statistics and Society, 22S:008 Statistics for Business, 22S:025 Elementary Statistics and Inference (same as 07P:025), and 22S:030 Statistical Methods and Computing. Credit for 22S:002 Statistics and Society can be earned only if the course is taken before 22S:008 Statistics for Business, 22S:025 Elementary Statistics and Inference (same as 07P:025), or 22S:030 Statistical Methods and Computing. Students may receive credit for only one course from each of these pairs: 22S:030 and 22S:105 Statistical Methods and Computing, 22S:101 Biostatistics and 22S:102 Introduction to Statistical Methods, and 22S:120 Probability and Statistics and 22S:130 Introduction to Mathematical Statistics I.

**22S:002 Statistics and Society** 3 s.h.
Statistical ideas and their relevance to public policy, business, and the social, health, and physical sciences; focus on critical approach to statistical evidence. Prerequisite: 22M:001 or equivalent. GE: Quantitative or Formal Reasoning.

**22S:008 Statistics for Business** 4 s.h.
Descriptive statistics, elementary probability, estimation and testing, regression, correlation; statistical computer packages. Prerequisite: 22M:002 or equivalent. GE: Quantitative or Formal Reasoning.

**22S:025 Elementary Statistics and Inference** 3 s.h.
Graphing techniques for presenting data, descriptive statistics, correlation, regression, prediction; logic of statistical inference, elementary probability models, estimation and tests of significance. Prerequisite: 22M:001 or equivalent. GE: Quantitative or Formal Reasoning. Same as 07P:025.

**22S:030 Statistical Methods and Computing** 3 s.h.
Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power; emphasis on learning statistical methods and concepts through hands-on experience with real data. Prerequisite: 22M:002. GE: Quantitative or Formal Reasoning.

**22S:039 Probability and Statistics for the Engineering and Physical Sciences** 3 s.h.
Descriptive statistics, exploratory data analysis, random variables, important discrete and continuous distributions, point and interval estimation, tests of hypotheses, regression; design of experiments, including factorial and fractional factorial designs. Prerequisite: 22M:032 or equivalent.

**For Undergraduate and Graduate Students**

**22S:101 Biostatistics** 3 s.h.
Statistics in biohealth science; probability, evidence, Bayes Rule; relative risks, design of experiments; linear, logistic, Cox regression; survival analysis; statistical adjustment. Prerequisite: 22M:001 or equivalent.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22S:102</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
<td>Analysis, interpretation of research data; descriptive statistics; introduction to probability, sampling theory, statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as 07P:143.</td>
</tr>
<tr>
<td>22S:105</td>
<td>Statistical Methods and Computing</td>
<td>3 s.h.</td>
<td>Methods of data description and analysis using SAS; descriptive statistics, graphical presentation, estimation, hypothesis testing, sample size, power; emphasis on learning statistical methods and concepts through hands-on experience with real data. Prerequisite: 22M:002.</td>
</tr>
<tr>
<td>22S:120</td>
<td>Probability and Statistics</td>
<td>4 s.h.</td>
<td>Models, discrete and continuous random variables and their distributions, estimation of parameters, testing statistical hypotheses. Prerequisite: 22M:026 or 22M:032.</td>
</tr>
<tr>
<td>22S:130</td>
<td>Introduction to Mathematical Statistics I</td>
<td>3 s.h.</td>
<td>Descriptive statistics, probability, discrete and continuous distributions, sampling, sampling distributions. Prerequisite: 22M:026 or 22M:032.</td>
</tr>
<tr>
<td>22S:131</td>
<td>Introduction to Mathematical Statistics II</td>
<td>3 s.h.</td>
<td>Estimation, testing statistical hypotheses, linear models, multivariate distributions, nonparametric methods. Prerequisite: 22S:130.</td>
</tr>
<tr>
<td>22S:133</td>
<td>Quality Control</td>
<td>3 s.h.</td>
<td>Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered fall semesters. Prerequisites: 22S:030 and 22S:039. Same as 056:162.</td>
</tr>
<tr>
<td>22S:138</td>
<td>Bayesian Statistics</td>
<td>3 s.h.</td>
<td>Bayesian statistical analysis, with focus on applications; Bayesian and frequentist methods compared; Bayesian model specification, choice of priors, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation and presentation of analysis results. Prerequisites: 22S:120 and 22S:152, or equivalent. Same as 07P:148.</td>
</tr>
<tr>
<td>22S:140</td>
<td>Design and Analysis of Biomedical Studies</td>
<td>3 s.h.</td>
<td>Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments; factorial experiments; multiple comparison techniques; orthogonal contrasts. Offered spring semesters. Prerequisite: 171:161 or equivalent. Same as 171:162.</td>
</tr>
<tr>
<td>22S:148</td>
<td>Intermediate Statistical Methods</td>
<td>4 s.h.</td>
<td>Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods. Prerequisite: 07P:143 or equivalent. Prerequisite: (for 22S:148) 22S:102 or equivalent. Same as 07P:243.</td>
</tr>
<tr>
<td>22S:150</td>
<td>Regression Time Series and Forecasting</td>
<td>3 s.h.</td>
<td>Regression analysis, forecasting, time series methods; use of statistical computing packages. Prerequisite: 22S:154 or consent of instructor.</td>
</tr>
<tr>
<td>22S:152</td>
<td>Applied Linear Regression</td>
<td>3 s.h.</td>
<td>Regression analysis with focus on applications; model formulation, checking, selection; interpretation and presentation of analysis results; simple and multiple linear regression; logistic regression; ANOVA; hands-on data analysis with SAS software. Prerequisite: 22S:030 or 22S:039 or equivalent. Same as 056:176.</td>
</tr>
<tr>
<td>22S:153</td>
<td>Mathematical Statistics I</td>
<td>3 s.h.</td>
<td>Probability, conditional probability, random variables, distribution and density functions, joint and conditional distributions, various families of discrete and continuous distributions, mgf technique for sums, convergence in distribution, convergence in probability, central limit theorem. Prerequisites: 22M:027 and 22M:028, or equivalents.</td>
</tr>
<tr>
<td>22S:154</td>
<td>Mathematical Statistics II</td>
<td>3 s.h.</td>
<td>Transformations, order statistics, point estimation, sufficient statistics, Rao-Blackwell Theorem, delta method, confidence intervals, likelihood ratio tests, applications. Prerequisite: 22S:153 or equivalent.</td>
</tr>
</tbody>
</table>
22S:156 Applied Time Series Analysis
General stationary, nonstationary models, autocovariance autocorrelation functions; stationary, nonstationary autoregressive integrated moving average models; identification, estimation, forecasting in linear models; use of statistical computer packages. Offered spring semesters. Prerequisites: 22S:131, and 22S:152 or 22S:164.

22S:157 Correlation and Regression
Correlation techniques; selected bivariate procedures, multiple, partial, curvilinear correlation; multiple linear regression; sampling theory applied to regression analysis and correlation coefficients; simple causal models. Prerequisite: 07P:243 or equivalent. Prerequisite: (for 22S:157) 22S:148 or equivalent. Same as 07P:244.

22S:158 Experimental Design and Analysis
Single- and multifactor experiments; analysis of variance; multiple comparisons; contrasts; diagnostics; fixed, random, and mixed effects models; designs with blocking and/or nesting; two-level factorials and fractions thereof; use of statistical computing packages. Prerequisites: 22S:030 and 22S:152.

22S:159 Design of Experiments
Theory and methods in the planning and statistical analysis of experimental studies; testing of hypotheses about linear contrasts among means in single-factor and multifactor, completely randomized, and repeated measurement designs. Prerequisite: 07P:243 or equivalent. Prerequisite: (for 22S:159) 22S:148. Same as 07P:246.

22S:160 Introductory Longitudinal Data Analysis
Statistical models and estimation methods used to analyze correlated data (e.g., same subject measured repeatedly); emphasis on use of statistical software. Offered fall semesters of even years. Prerequisite: 171:161 or equivalent or consent of instructor. Pre- or corequisite: 171:162 or 22S:152 or consent of instructor. Same as 171:174.

22S:161 Applied Multivariate Analysis
MANOVA, discriminant analysis, factor analysis, principal components, canonical analysis, nonmetric scaling, cluster analysis, categorical data analysis, use of multivariate statistical computer packages. Offered fall semesters. Prerequisites: 22S:152 and 22S:158, or equivalents; and facility with matrix algebra. Same as 07P:245.

22S:162 Applied Generalized Regression
Applications of semiparametric models, generalized linear models, nonlinear normal errors models, correlated response models; use of statistical packages, especially SAS. Prerequisites: introductory statistics and applied linear models.

22S:163 Nonparametric Statistical Methods
Selected nonparametric methods; one- and two-sample location tests and estimation methods, measures of association, analyses of variance; emphasis on relationships to classical parametric procedures. Prerequisite: 07P:243 or 22S:120 or consent of instructor. Same as 07P:247.

22S:164 Applied Statistics I
Introduction to computing environment and statistical packages, descriptive statistics, basic inferential methods (confidence intervals, chi-square tests); linear models (regression and ANOVA models--specification and assumptions, fitting, diagnostics, selection, testing, interpretation). Prerequisites: 22S:120 or equivalent, and facility with matrix algebra.

22S:165 Applied Statistics II
Design of experiments, analysis of designed experiments, sample survey design. Prerequisite: 22S:164 or equivalent.

22S:166 Computing in Statistics
R; database management; graphical techniques; importing graphics into word-processing documents (e.g., LaTeX); creating reports in LaTeX; SAS; simulation methods (Monte Carlo studies, bootstrap, etc.). Corequisites: 22S:164 and 22S:193, or equivalents.

22S:167 Environmental and Spatial Statistics
Methods for sampling environmental populations, sampling design, trend detection and estimation, geostatistics, kriging, variogram estimation, lattice data analysis, analysis of spatial point patterns. Prerequisites: 22S:152 and 22S:154, or equivalents.

22S:168 Intermediate Experimental Design
Continuation of 22S:165; factorial and fractional factorial designs; response surface methods; canonical analysis; longitudinal data analysis; advanced topics in design. Prerequisite: 22S:165.

22S:170 ALPHA Seminar
1 s.h.
Resources available to students, program requirements, tips for academic success, professional statistical organizations, library and career center resources, statistical computing, scientific document preparation, history of statistics. Prerequisite: graduate standing in statistics.

22S:171 Topics in Actuarial Science
3 s.h.
Prerequisite: consent of instructor.

22S:172 Topics in Statistics
3 s.h.
Prerequisite: 22S:154 or consent of instructor.

22S:173 Statistical Consulting
3 s.h.
Realistic supervised data analysis experiences, including statistical packages, statistical graphics, writing statistical reports, dealing with complex or messy data. Offered spring semesters. Prerequisites: 22S:152 and 22S:158, or 22S:164 and 22S:165.

22S:174 Quantitative Methods for Actuaries
3 s.h.

22S:175 Actuarial Models
3 s.h.
Poisson processes, Markov chains, Brownian motion, simulation, financial applications. Offered spring semesters. Prerequisite: grade of C or higher in 22S:174.

22S:176 Credibility and Loss Distributions
3 s.h.
Application of statistical theory to development and estimation of loss distributions; fitting distributions to truncated and grouped data; analysis of simulated data; classical, Bayesian, and Bühlmann credibility models for experience rating. Offered spring semesters. Prerequisites: 22S:154 or 22S:194, and grade of C or higher in 22S:175.

22S:180 Mathematics of Finance I
4 s.h.
Mathematics of compound interest, including annuities certain, amortization schedules, yield rates, sinking funds, bonds. Offered fall and spring semesters. Prerequisite: 22M:026 or consent of instructor.

22S:181 Life Contingencies I
3 s.h.
Survival distributions and life table, life insurance, life annuities, benefit premiums. Offered spring semesters. Prerequisites: 22S:153 or 22S:193, and grades of C or higher in 22S:174 and 22S:180.

22S:182 Life Contingencies II
3 s.h.
Continuation of 22S:181; benefit premiums and reserves, multiple-decrement and multilife models. Offered fall semesters. Prerequisite: grade of C or higher in 22S:181.

22S:183 Mathematics of Finance II
3 s.h.
Derivatives markets, interest rate models, financial applications. Offered fall semesters. Prerequisite: grade of C or higher in 22S:175.

22S:185 Asset and Liability Management
3 s.h.
Interest rate risk; immunization; duration analysis; cash flow matching; fundamental theorem of asset pricing; term structure of interest rate models. Prerequisite: grade of C or higher in 22S:175 or 22S:181, or consent of instructor.

22S:188 Actuarial Exam Preparation
arr.

22S:190 Mathematical Methods for Statistics
3 s.h.
Real numbers, point set theory, limit points, limits, sequences and series, Taylor series (multivariate), uniform convergence, Riemann-Stieltjes integrals. Prerequisite: statistics graduate standing or consent of instructor.

22S:193 Statistical Inference I
3 s.h.
Review of probability, distribution theory (multiple random variables, moment-generating functions, transformations, conditional distributions), sampling distributions, order statistics, limit theory, principles of data reduction. Prerequisites: 22M:028 and 22S:131, or equivalents.

### 22S:194 Statistical Inference II
3 s.h.
Continuation of 22S:193; point estimation theory (MLE, Bayes, UMVU), hypothesis testing, interval estimation, decision theory. Prerequisite: 22S:193.

### 22S:195 Probability and Stochastic Processes I
3 s.h.
Conditional expectations; Markov chains, including random walks and gambler's ruin; classification of states; stationary distributions; branching processes. Prerequisite: 22S:130, or 22S:120 and consent of instructor.

### 22S:196 Probability and Stochastic Processes II
3 s.h.
Continuous-time Markov chains, including birth and death processes and time reversibility; renewal theory, including regenerative processes and semi-Markov processes; Brownian motion, stationary processes. Prerequisite: 22S:195.

### 22S:197 Readings in Statistics
arr.
Prerequisite: consent of instructor.

### Primarily for Graduate Students

#### 22S:203 Foundations of Probability I
3 s.h.
Probability theory, with emphasis on constructing rigorous proofs; measure spaces, measurable functions, random variables and induced measures, distribution functions, Lebesgue integral, product measure and independence, Borel Cantelli lemma, modes of convergence. Prerequisite: 22S:190.

#### 22S:204 Foundations of Probability II
3 s.h.
Laws of large numbers, characteristic functions and properties, central limit theorem, Radon-Nikodym derivatives, conditional expected value and martingales. Prerequisite: 22S:203.

#### 22S:220 Analysis of Categorical Data
3 s.h.

#### 22S:225 Survival Data Analysis
3 s.h.
Types of censoring and truncation; survival function estimation; life tables; parametric inference using exponential, Weibull, and accelerated failure time models; nonparametric tests; sample size calculation; Cox regression with stratification and time-dependent covariates; regression diagnostics; competing risks; analysis of correlated survival data. Offered fall semesters. Prerequisites: 22S:154 or 22S:194, and 171:202 or equivalent. Same as 171:261.

#### 22S:235 Time Series Analysis
3 s.h.
Stationary time series, ARIMA models, spectral representation, linear prediction inference for the spectrum, multivariate time series, state space models and processes, nonlinear time series. Prerequisites: 22S:153, 22S:154, and 22S:156.

#### 22S:238 Bayesian Analysis
3 s.h.
Decision theory, coherence and utility, subjective probability, likelihood principle, conjugate families, structure of Bayesian inference, asymptotic approximations for posterior distributions, sequential experiments, exchangeability, hierarchical models, nonparametric Bayes procedures, empirical Bayes methods, numerical and Markov chain Monte Carlo methods. Prerequisites: 22S:190 and 22S:194.

#### 22S:248 Computer Intensive Statistics
3 s.h.
Computer arithmetic; random variate generation; numerical optimization; numerical differentiation, integration, and linear algebra; smoothing techniques; bootstrap methods; cross-validation; MCMC; EM and related algorithms; other topics per student/instructor interests. Prerequisites: 22S:164 or 171:201, and proficiency in Fortran or C or C++ or Java.
22S:253 Advanced Inference I
Concepts of convergence, asymptotic methods including the delta method, sufficiency, asymptotic efficiency, Fisher information and information bounds for estimation, maximum likelihood estimation, the EM-algorithm, Bayes estimation, decision theory. Prerequisite: 22S:190 and 22S:194.

22S:254 Advanced Inference II
Hypothesis testing, asymptotics of the likelihood ratio test, asymptotic efficiency, statistical functionals, robustness, bootstrap and jackknife, estimation with dependent data. Prerequisite: 22S:253.

22S:255 Linear Models
Linear spaces and matrix theory, multivariate normal distribution and distributions of quadratic forms, full-rank and non-full-rank linear models, estimability, interval estimation, hypothesis testing, random and mixed models, applications. Prerequisites: 22S:164, 22S:165, and 22S:194.

22S:256 Multivariate Analysis
Multivariate distributions, tests and estimates, multivariate general linear model, MANOVA, discriminant analysis, canonical correlation, factor analysis, principal components. Prerequisite: 22S:255.

22S:273 Advanced Topics in Actuarial Science
Repeatable. Prerequisite: consent of instructor.

22S:291 Seminar: Mathematical Statistics
Repeatable. Prerequisite: consent of instructor.

22S:293 Seminar: Probability
Repeatable. Prerequisite: consent of instructor.

Repeatable. Prerequisite: consent of instructor.

22S:299 Reading Research
Repeatable. Prerequisite: consent of advisor.
Theatre Arts

Director, Division of Performing Arts: Alan MacVey
Chair: Alan MacVey
Professors: Eric Forsythe, Alan MacVey, Kim Marra (Theatre Arts/American Studies)
Professors emeriti: Cosmo A. Catalano, David Schaal, David Thayer
Associate professors: Loyce Arthur, Art Borreca, John Cameron, Merrel Dare Clubb, Tisch Jones, Sydne Mahone, Byron Winn
Visiting associate professor: Judy Leigh-Johnson
Assistant professors: Paul Kalina, R. Eric Stone
Lecturers: James Albert, Meredith Alexander, James P. Birder, Carol MacVey, David McGraw
Undergraduate degree: B.A. in Theatre Arts
Undergraduate nondegree program: Minor in Theatre Arts
Graduate degree: M.F.A. in Theatre Arts
Web site: http://www.uiowa.edu/~theatre

The Department of Theatre Arts offers academic programs for undergraduate and graduate students. It also stages live performances throughout the academic year and during the summer.

The department is one of three academic units that make up the Division of Performing Arts.

Undergraduate Programs

The Department of Theatre Arts offers a Bachelor of Arts and a minor in theatre arts. It also participates in offering the Certificate in Performing Arts Entrepreneurship, offered through the Division of Performing Arts.

The major is based on the department's belief that the best way to develop future artists is to expose them to rigorous professional practice within the framework of a liberal arts and sciences education.

Department of Theatre Arts students take workshop courses in acting, directing, design, technical theatre, stage management, and playwriting and complement them with classes in dramatic literature, history, and criticism. Students also are encouraged to explore a range of courses throughout the University. Two dozen productions are staged each year, providing additional opportunities to learn the theatre craft and to develop a personal artistic vision.

The department also educates students who plan to enter other fields in which understanding of the arts and experience with theatre skills are useful. Some pursue a major in theatre arts or work toward a double major in theatre arts and another discipline. Others take theatre classes as nonmajors; see "Courses for Nonmajors" in this section of the Catalog.

Bachelor of Arts

The Bachelor of Arts in theatre arts requires a minimum of 120 s.h., including 33 s.h. of work for the major. The following courses constitute the basic experience for all undergraduate theatre arts students. Registration in some courses for the major requires special permission. Contact the Department of Theatre Arts for details.

Students must maintain a g.p.a. of at least 2.00 for all courses in the major.

Students who transfer to The University of Iowa from other accredited two- or four-year institutions must demonstrate that they have successfully completed course work equivalent to the basic requirements of the theatre arts department and the University before they may take advanced-level electives. Consult the director of undergraduate studies for more information.

Students must complete the College of Liberal Arts and Sciences General Education Program.

In planning course work, especially electives, students should be guided by the College of Liberal Arts and Sciences maximum hours rule: Students earning a B.A. or B.S. may apply a maximum of 50 s.h. earned in one department to the minimum 120 s.h. required for graduation, whether or not the course work is accepted toward requirements for the major; students who earn more than 50 s.h. from one department may use the additional semester hours to satisfy requirements for the major (if the department accepts them), and the grades they earn become part of their grade-point average; but they cannot apply the additional semester hours to the minimum 120 s.h. required for graduation.

COMMON REQUIREMENTS

Students must complete a course's prerequisites before registering for the course. Playscript Analysis (049:060) should be completed as soon as possible; it is prerequisite to several 100-level courses. Courses 049:025 Acting I, 049:060 Playscript Analysis, 049:112 History of Theatre and Drama I or 049:113 History of Theatre and Drama II, and the design requirement normally are completed within the first four semesters in the major. Theatre Crafts (049:044) is prerequisite to all production courses; 049:045 Production: Run Crew is prerequisite to 049:046 Production: Crew Chief and 049:047 Production: Construction.

Students who complete 049:002 Theatre and Society: Ancients and Moderns or 049:003 Theatre and Society: Romantics and Rebels before declaring a major in theatre arts must consult the undergraduate director before
registering for 049:112 History of Theatre and Drama I or 049:113 History of Theatre and Drama II.

All of these:

- 049:025 Acting I 3 s.h.
- 049:044 Theatre Crafts 3 s.h.
- 049:060 Playscript Analysis 3 s.h.
- 049:112 History of Theatre and Drama I 3 s.h.
- 049:113 History of Theatre and Drama II 3 s.h.
- Design requirement (049:043, 049:133-049:136, or 049:146) 3 s.h.
- Theatre courses numbered 100 or above 6 s.h.

Required production courses: Students must earn a total of 3 s.h. from the following production courses; 049:045 Production: Run Crew is prerequisite to 049:046 Production: Crew Chief and 049:047 Production: Construction.

- 049:045 Production: Run Crew 1-2 s.h.
- 049:046 Production: Crew Chief 2 s.h.
- 049:047 Production: Construction 1-2 s.h.

Optional courses: With the instructor's approval, students who enroll in one of the three optional courses (049:132 Stage Management, 049:147 Technical Production I, or 049:148 Technical Production: Special Topics) also may enroll in 049:045 Production: Run Crew (a required production course) during the same semester or session and may complete an additional project, earning 1 s.h. for 049:045 Production: Run Crew in addition to the credit they earn for the optional course. Students may earn a maximum of 1 s.h. of required production course credit this way.

- 049:132 Stage Management 3 s.h.
- 049:147 Technical Production I 3 s.h.
- 049:148 Technical Production: Special Topics 3 s.h.

One of these:

- 049:130 Directing I 3 s.h.
- 049:172 Senior Seminar 3 s.h.

**ELECTIVES**

Students majoring in theatre arts may count up to 17 s.h. earned in Department of Theatre Arts elective courses (prefix 049) toward degree requirements.

Transfer students should consult the director of undergraduate studies before registering for advanced-level electives.

**Student Auditions for Theatre Arts Productions**

Theatre arts majors are encouraged to audition for the department's productions in general auditions at the beginning of the fall semester. Students normally present a three-minute audition consisting of two contrasting pieces. From this audition, callback lists are posted for major productions offered during the first semester. Additional general auditions normally are scheduled in early November and in February.

Students in other majors are welcome to audition for the department's productions, as are community members (see "Productions and Auditions" later in this section). For academic considerations, theatre arts majors are given first consideration for roles.

Materials and information about the general auditions are available from the Department of Theatre Arts office in August. Notices of auditions for all subsequent productions are posted on the department's call board.

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

**Before the third semester begins:** at least one-quarter of the semester hours required for graduation.

**Before the fifth semester begins:** three courses in the major (chosen from 049:025 Acting I, 049:043 Elements of Design, 049:060 Playscript Analysis, 049:112 History of Theatre and Drama I, and 049:113 History of Theatre and Drama II) and at least one-half of the semester hours required for graduation.
Before the seventh semester begins: three more courses in the major, two semesters of production credit, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: two more courses in the major and another semester of production credit

During the eighth semester: enrollment in remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Students who wish to pursue honors studies in the Department of Theatre Arts must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Senior theatre arts majors who are members of the honors program, have earned a 3.33 g.p.a. in the major, and have approval from the theatre arts faculty may undertake an honors project. Projects may be analytical or creative, or an appropriate combination of the two. Projects ordinarily require an oral presentation or performance for designated faculty members as well as a research and writing component, which is due upon the project's completion.

Students who wish to complete an honors project meet with the departmental honors advisor, who helps them find an appropriate faculty sponsor, prepare and gain acceptance for a written proposal, present the work, and evaluate the outcome. Students normally begin this work before their senior year.

Theatre arts majors who are members of the University of Iowa Honors Program may take honors courses in theatre arts. Courses in the major can be designated as honors courses with permission of the faculty member who teaches the course, the department, and the honors program.

Minor

The minor in theatre arts requires a minimum of 15 s.h. in theatre arts courses, including 12 s.h. in advanced courses taken at The University of Iowa. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

For the minor, advanced courses include 049:021 Basic Acting II, 049:043 Elements of Design, 049:044 Theatre Crafts, 049:060 Playscript Analysis, 049:063 Playwriting II, and any course numbered 049:100 and above. Students must complete all prerequisites for the courses they choose for the minor. They may not include 049:025 Acting I in the minor; it is reserved for students majoring in theatre arts. Students interested in acting should start the minor with 049 049:020 Basic Acting and then 049:021 Basic Acting II. In rare cases, a student who has completed those may be granted permission to take 049:120 Acting II, which generally is reserved for theatre arts majors.

Courses for Nonmajors

Students in other majors who have an interest in the theatre arts may take courses in the department. The following courses are open to nonmajors.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>049:001</td>
<td>Art of the Theatre</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:002</td>
<td>Theatre and Society: Ancients and Moderns</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:003</td>
<td>Theatre and Society: Romantics and Rebels</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:020</td>
<td>Basic Acting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:021</td>
<td>Basic Acting II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:042</td>
<td>Clothing as Nonverbal Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:050</td>
<td>Musical Theatre</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:051</td>
<td>Comedy and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:062</td>
<td>Playwriting I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:072</td>
<td>Shakespeare</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:101</td>
<td>Drama in the Classroom</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:102</td>
<td>Acting for Singers</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>049:103</td>
<td>Voice/Speech/Text--Speaking in Public</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:105</td>
<td>Movement for Performers</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>049:106</td>
<td>Singing for Actors</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>049:109</td>
<td>Introduction to Arts Management</td>
<td>3 s.h.</td>
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<tr>
<td>049:110</td>
<td>Theatre for Social Outreach</td>
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</tr>
<tr>
<td>049:111</td>
<td>New Ventures in the Arts</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:161</td>
<td>The Arts in Performance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>049:182</td>
<td>Free Style Writing: Poetry, Plays, and Performances</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Nonmajors with backgrounds in the fine arts may take the following courses with consent of instructor.

049:133 Theatre Design I  3 s.h.
049:134 Scene Design I  3 s.h.
049:135 Costume Design I  3 s.h.
049:136 Lighting Design I  3 s.h.

Other courses may be open to nonmajors with consent of the instructor.

**Graduate Program**

The department offers a Master of Fine Arts in theatre arts.

**Master of Fine Arts**

The Master of Fine Arts in theatre arts requires 61-69 s.h. of graduate credit, depending on specialty area. Students normally must complete six semesters in residence (internships may be substituted).

The graduate program is dedicated to creative development of theatre artists. Graduates have a solid background in major performance theories, dramatic literature, and practices of the past and present as well as in the craft of their chosen specialties.

Special attention is given to understanding the role and importance of live theatre in society. Interactions among the various theatre disciplines are emphasized, both in classes and through the department's extensive production program. Particular emphasis is placed on the development of new works for the theatre.

Students must make normal progress toward completion of the degree requirements to remain in the program: they must maintain a g.p.a. of at least 3.00 overall and in all course work within the primary area of concentration, and they must build a record of substantial creative work of high quality. Students who fail to make normal progress are placed on academic probation and given one additional semester to demonstrate their qualifications for earning the degree.

Contact the Department of Theatre Arts for specific information on any of the M.F.A. specialty areas.

**Admission**

Students who demonstrate exceptional ability in acting, directing, dramaturgy, playwriting, design, or stage management may apply for admission to the program of study and production leading to the M.F.A. Admission is based on interview, audition, and/or a portfolio of relevant work, the undergraduate record or other proof of artistic accomplishment, and letters of recommendation.

Submission of playscripts is the most important element in gaining admission to the Playwrights Workshop.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Facilities**

The University of Iowa has one of the finest educational theatre complexes in the country. The Theatre Building offers four theatres and up-to-date facilities for classroom, laboratory, shop, and performance work.

The E.C. Mabie Theatre, a continental-style, 457-seat proscenium playhouse, is one of the finest theatres of its type in the United States. The David Thayer Theatre is a "black box" production space; its flexible seating units accommodate from 140 to 225 people and allow modification of space and audience relationships. Theatre B, which seats 144, is an open-stage theatre dedicated primarily to the production of new and experimental works. The flexible studio theatre seats 50.

In addition to classrooms for acting and directing, several spaces are designed for teaching particular aspects of dramatic studies. The Cosmo Catalano Acting Studio is for study of movement and motion by acting students. The
Arnie Gillette Design Studio serves as classroom and studio workshop for design students. To support its production schedule and to provide students with an appropriate range of experience, the department maintains shops for building, painting, maintaining, and storing scenery, costumes, and properties. Using these shops, students learn to work in metal, plastics, canvas, and wood.

**Productions and Auditions**

The Department of Theatre Arts presents around 25 public productions each year. These include a subscription series of five plays, a festival of five new works by students, three productions by Iowa Summer Repertory Theatre (a professional company that also employs students), and other productions, many of them new plays.

Special attention is given to the process of developing new works and to the collaborative process that involves writers, directors, designers, dramaturgs, stage managers, and actors. Graduates, undergraduates, faculty, and visiting guest artists work together on large and small projects throughout the year and in a special summer repertory season.

**Auditions for Theatre Arts Productions**

Auditions for theatre arts productions are open to everyone, including all University of Iowa students and members of the local community. Theatre arts students are given first priority for roles, but many roles are available throughout the year, and many non-theatre students and nonstudent actors are cast each season. Occasionally, professional actors are employed.

General auditions are held at the beginning of the fall semester, and callback lists are posted during the semester. Additional general auditions usually are scheduled in early November and in February. Information about auditions is available from the Department of Theatre Arts office in August. Notices of auditions are posted on the department's call board.

**Theatre Arts Courses**

**Primarily for Undergraduates**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>049:001</td>
<td>Art of the Theatre</td>
<td>3 s.h.</td>
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<tr>
<td>049:002</td>
<td>Theatre and Society: Ancients and Moderns</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Representative plays as performed in social contexts of ancient Egypt; classical Greece, Rome, India, and Japan; and medieval and early modern Europe. GE: Fine Arts, Historical Perspectives.</td>
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<tr>
<td>049:003</td>
<td>Theatre and Society: Romantics and Rebels</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Representative plays as performed in social contexts of revolutionary and modern Europe and postwar United States. GE: Fine Arts, Historical Perspectives.</td>
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<tr>
<td>049:020</td>
<td>Basic Acting</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Concentration, relaxation, imagination, observation, communication, sensory awareness; development of theatrical creativity through objectives, obstacles, action, conflict, spontaneity; development of a scene from scripts. Prerequisite: non-theatre arts majors. GE: Fine Arts.</td>
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<tr>
<td>049:021</td>
<td>Basic Acting II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Continuation of 049:020; emphasis on development of scenes.</td>
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<tr>
<td>049:029</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
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<td></td>
<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.</td>
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<tr>
<td>049:042</td>
<td>Clothing as Nonverbal Communication</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>How clothing communicates culture, gender, self-concept, age, occupation, values, status, tastes, sexuality; clothing for international business, children, the elderly; fashion theory. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: g.p.a. of at least 2.60 and 30 s.h. of credit. Same as 036:020.</td>
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<tr>
<td>049:043</td>
<td>Elements of Design</td>
<td>3 s.h.</td>
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</tbody>
</table>
Development of visual literacy; manipulation of line, shape, color, value, texture, form; development of designs for theatre through techniques explored in class.

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<tr>
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<tbody>
<tr>
<td>049:044</td>
<td>Theatre Crafts</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Backstage operations; wardrobe, scenery, properties, lighting, sound. Prerequisite: theatre arts major or consent of instructor.</td>
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<tr>
<td>049:045</td>
<td>Production: Run Crew</td>
<td>1-2 s.h.</td>
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<tr>
<td></td>
<td>Experience as run crew member in scenery, props, or costumes; or light board, sound board, or follow-spot operator; for mainstage production. Prerequisite: 049:044 or 137:050 or consent of instructor. Same as 137:051.</td>
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<tr>
<td>049:046</td>
<td>Production: Crew Chief</td>
<td>2 s.h.</td>
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<td></td>
<td>Experience as master electrician, stage manager, assistant stage manager, wardrobe master, production carpenter, or properties assistant for single production. Prerequisites: 049:044 and 049:045.</td>
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<tr>
<td>049:047</td>
<td>Production: Construction</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Production work in scenery, costume, or electrics shop. Prerequisites: 049:044, 049:045, and consent of instructor.</td>
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<tr>
<td>049:050</td>
<td>Musical Theatre</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>American musical theatre's form, function, evolution; major composers (Berlin, Gershwin, Rodgers and Hammerstein, Sondheim), lesser-known and contemporary writers; roots of the rock musical, future of musical theatre, how musicals reflect their own eras and cultural attitudes of their times; readings, recordings, videos. Ability to read music not required.</td>
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<tr>
<td>049:051</td>
<td>Comedy and Society</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>How comedy reflects, comments upon, and intersects with western culture and society; roots of western comedy, satire, censorship; comic playwrights, stand-up comedians, improv and sketch troupes, satirists; gender and sexuality; how portrayals of African Americans in popular culture evolved from early 20th century to present; videos, readings, live performances.</td>
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<tr>
<td>049:060</td>
<td>Playscript Analysis</td>
<td>3 s.h.</td>
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<td></td>
<td>Basic skills in critical reading and close analysis of dramatic texts, with focus on dramatic structure, challenges of putting texts into production.</td>
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<tr>
<td>049:062</td>
<td>Playwriting I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Elements of playwriting; emphasis on analysis and discussion of original student writing. GE: Fine Arts.</td>
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<tr>
<td>049:063</td>
<td>Playwriting II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Continuation of 049:062; original student writing, one-act play form. Prerequisite: 049:062.</td>
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<tr>
<td>049:072</td>
<td>Shakespeare</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 008:147.</td>
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</table>

For Undergraduate and Graduate Students

**Acting and Directing**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>049:025</td>
<td>Acting I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Development of creativity, imagination, and openness through exercises to engage mind, body, and voice in theatrical play and scene work. Prerequisite: consent of instructor.</td>
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<tr>
<td>049:101</td>
<td>Drama in the Classroom</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Theories of community, culture, identity in relation to language arts teaching and learning; emphasis on incorporating multiple literacies, both oral and print, into language arts curricula; action research involving oral literacy. Same as 07E:180.</td>
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<tr>
<td>049:102</td>
<td>Acting for Singers</td>
<td>2 s.h.</td>
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</tbody>
</table>
Fundamentals of acting technique, with attention to demands on performers in opera and musical theater. Prerequisite: consent of instructor. Same as 025:175.

**049:103 Voice/Speech/Text--Speaking in Public**
3 s.h.
How to be an effective and confident communicator; exercises designed to develop and improve vocal sound, vocal strength, clarity of speech; appropriate interpretation of text.

**049:105 Movement for Performers**
2-3 s.h.
Movement as support for sound production, artistic expression, and wellness; Bartenieff Fundamentals, Laban Movement Analysis, or principles of the Alexander Technique as methods of organizing and integrating body movement and expanding expressive range; studio course with practice, journal, observations, project applying movement skills to student's area of performance/study. Same as 025:167, 137:160, 188:167.

**049:106 Singing for Actors**
2 s.h.
Skill development for healthy, effective singing in the musical theatre style; techniques of vocal production through breath management, resonance, articulation, flexibility; song interpretation and repertoire. Recommended: (for 025:169) concurrent registration in 025:059. Same as 025:169.

**049:108 Dance Kinesiology**
3 s.h.
Body science related to demands of dance; structural and muscular analysis for efficient, effective dance training and prevention of injuries; investigation of skeletal and ligamentous structure for working knowledge of how the body produces movement; joint actions and restrictions, common injuries to those sites; attachments of the voluntary muscles, pathways and potential actions; neuromuscular analysis of an action; functional skeletal alignment; how individual differences may affect movement performance. Prerequisite: 027:053. Same as 137:147.

**049:109 Introduction to Arts Management**
3 s.h.
Nonprofit performing arts management and administrative principles; practical applications, trends in the field; focus on arts organizations and their key administrative positions. Same as 145:109, 188:109.

**049:110 Theatre for Social Outreach**
arr.
Use of improvisation, storytelling, readers' theatre to explore complex social issues; participation in Darwin Turner Action Theatre; experience creating works that examine social issues, especially those related to cultural diversity; performances in Iowa schools and communities. Prerequisite: consent of instructor.

**049:111 New Ventures in the Arts**
3 s.h.
Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates 06J:125 and 06T:120. Prerequisites: 06A:001 or 06T:050 or an approved college-level accounting course, and 06M:100; or graduate standing and consent of instructor. Corequisite: 06T:113. Same as 06T:125, 145:111, 188:111.

**049:120 Acting II**
3 s.h.
Extension of work begun in 049:025; scene study, with focus on contemporary realism and development of collaborative dynamic. Prerequisites: 049:025, audition, and consent of instructor.

**049:121 Advanced Scene Study**
3 s.h.
Development of characterization and creative process through performance of complex, challenging scenes. Prerequisites: 049:120, 049:125 or 049:127, audition, and interview.

**049:122 Acting With Verse**
3 s.h.
Approaches to poetic material; emphasis on Shakespeare; contemporary scenes written in poetic or abstract styles. Prerequisites: 049:120, 049:125, and consent of instructor.

**049:124 Acting: Special Topics**
3 s.h.
Specialized study in a specific aspect or theory of acting. Prerequisite: consent of instructor.

**049:125 Voice for the Actor**
1-3 s.h.
Progressive development of voice and speech for theatre; physical awareness, relaxation, breathing, freeing the sound channel, resonance, articulation; application of voice work through prose, poetry, text. Prerequisite: 049:025.

**049:126 Voice, Text, and the Actor**
3 s.h.
Vocal study of prose, poetry, and dramatic text to achieve connection to language—emotion, images, and sensuality connected to a fully released voice; emphasis on Shakespearean verse. Prerequisite: 049:125.

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<thead>
<tr>
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<tbody>
<tr>
<td>049:127</td>
<td>Theatre Movement</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>The body as a tool for dramatic expression; basic principles and practices of stage movement; approaches to physical technique, mime/movement studies, ensemble performance projects. Prerequisite: theatre arts major.</td>
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<tr>
<td>049:128</td>
<td>Movement Styles</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Intensive study of a selected movement style, such as mask, clowning, melodrama, mime, commedia dell'arte, stage combat; presentation of student projects. Prerequisite: 049:127 or consent of instructor.</td>
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<tr>
<td>049:129</td>
<td>Stage Combat</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Principles, safety, techniques of nonviolent stage combat for actor, director, choreographer.</td>
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<tr>
<td>049:130</td>
<td>Directing I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Basic elements of stage direction; exercises in composition, emphasis, movement, rhythm, directorial analysis; director's role in production process; short scenes, projects, papers. Prerequisites: 049:025, 049:043, 049:060, and consent of instructor.</td>
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<tr>
<td>049:131</td>
<td>Directing II</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Continuation of 049:130; practical work in stage direction culminating in a larger directing project. Prerequisite: 049:130.</td>
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<tr>
<td>049:132</td>
<td>Stage Management</td>
<td>3 s.h.</td>
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<td></td>
<td>Duties and procedures of stage management; focus on development of production from preparatory work through performance; examine role of stage manager in collaboration.</td>
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<tr>
<td>049:195</td>
<td>Arts Leadership Seminar</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Performing arts management and administrative principles, practical applications, trends in arts leadership and advocacy. Prerequisite: (for 049:195) 049:109 or 049:111 or graduate standing in an arts discipline. Same as 06T:155, 145:195, 188:195.</td>
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<tr>
<td>049:200</td>
<td>Stage Management: Special Topics</td>
<td>3 s.h.</td>
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<td></td>
<td>Topics in stage management, arts production, and their professional practice. Repeatable. Prerequisites: 049:133 and consent of instructor.</td>
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<tr>
<td>049:201</td>
<td>Voice for Performers</td>
<td>2 s.h.</td>
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<td></td>
<td>Comparison of Kinesthetic techniques for singing and acting voice; relaxation, posture, breathing, tone quality, diction, interpretation. Prerequisite: enrollment in Summer Vocology Institute, Denver, Colorado. Same as 003:204, 025:216.</td>
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<tr>
<td>049:220</td>
<td>Advanced Acting</td>
<td>3 s.h.</td>
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<td>Preprofessional training; may include psychophysical training in impulse, openness and the &quot;mask,&quot; individual and group dynamics, improvisation, repetition, characterization and scenework, Shakespeare and style, on-camera, development of professional work habits and skills, audition and interview. Repeatable. Prerequisite: consent of instructor.</td>
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<tr>
<td>049:225</td>
<td>Vocal Technique</td>
<td>3 s.h.</td>
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<td></td>
<td>Skills training; voice and speech for the actor, phonetics, dialects, sound exploration, contemporary and classical text analysis. Repeatable. Prerequisite: consent of instructor.</td>
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<tr>
<td>049:227</td>
<td>Movement Technique</td>
<td>3 s.h.</td>
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<td></td>
<td>Fundamental principles and practices required for physical acting technique; basic stage movement, stage combat, mime technique, Lecoq-based improvisation; a new works project. Repeatable. Prerequisite: graduate acting major.</td>
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<tr>
<td>049:230</td>
<td>Director's Seminar</td>
<td>1-3 s.h.</td>
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<td></td>
<td>Preprofessional training in stage direction; the art and craft of directing; research, practical experience; development of new pieces; approaches to a variety of theatrical materials through concept, type, style. Repeatable. Prerequisite: consent of instructor.</td>
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<tr>
<td>049:233</td>
<td>Stage Management Seminar</td>
<td>1 s.h.</td>
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</tbody>
</table>
Practice and techniques of stage management. Repeatable. Prerequisite: graduate stage management major.

Design

**049:133 Theatre Design I**

The process of theatre design; how to research, conceptualize, and visualize ideas; experience using a script and working in scenery, costumes. Prerequisites: 049:043 and consent of instructor.

**049:134 Scene Design I**

The development of theatre scenery; how to research, conceptualize, and express ideas in sketches, models, simple drafting. Same as 01P:134.

**049:135 Costume Design I**

Development of theatre costumes; how to research, conceptualize, and express ideas through rendering and swatching; historical orientation. Prerequisite: 049:133.

**049:136 Lighting Design I**

How to research, conceptualize, and express ideas through light plots, other design paperwork, and theatre lighting design projects.

**049:137 Scene Design II**

Design and execution of increasingly complex projects in a variety of formats, including refined perspective sketching, color models, property drawing, more detailed drafting. Prerequisites: 049:060, 049:134, and consent of instructor.

**049:138 Costume Design II**

Research, conceptual and character analysis skills, color, material, and volume as expressions of different styles. Prerequisite: 049:135 or consent of instructor.

**049:139 Lighting Design II**

Production styles and venues; skills developed through increasingly complex light plots, more precise paperwork. Prerequisites: 049:060, 049:136, and consent of instructor.

**049:140 Sound Design for the Theatre**

Methods of sound recording, editing, reinforcement; how to conceptualize and express ideas for theatre production.

**049:141 Period Styles for Theatre Designers**

Aesthetics of selected periods as they apply to theatrical presentation; principles of architecture, furniture, fashion.

**049:142 Textile Science**

Same as 097:107.

**049:143 Sound Design II**

Sound designs for theatre using digital and analog equipment; concept development, design execution; focus on computer-aided design skills, design presentation, advanced editing techniques. Prerequisite: 049:140.

**049:144 Drafting for Designers**

Tools and techniques of drafting for theatre; development of plans, sections, elevations, detail drawings for scenery; manual and analytical skills. Prerequisite: consent of instructor.

**049:145 Computer Visualization**

Computer drafting with AutoCAD, principles of theatre drafting, basic functions and commands, one-word editing skills. Prerequisite: 049:144.

**049:146 Drawing and Rendering for the Theatre**

Development of artistic skills and documentation techniques through studio work in drawing, painting, model craft projects for theatre.

**049:147 Technical Production I**
Scene construction techniques, including stage carpentry, softgoods, theatrical rigging, drafting, management procedures. Prerequisite: 049:044 or consent of instructor.

049:148 **Technical Production: Special Topics** 3 s.h.
Skill development and construction techniques, including work in plastics, metals, mechanics, electrics. Prerequisite: 049:044 or consent of instructor.

049:151 **Scenic Art for Designers** 3 s.h.
Techniques in scenic art for the theatre; classical trompe l'oeil scene painting, sculpting with nontraditional materials, finishing. Prerequisite: consent of instructor.

049:152 **Costume Crafts: Special Topics** 3 s.h.
Stage makeup design and application, paper mache and plaster gauze mask-making techniques.

049:153 **Costume Crafts II** 3 s.h.
Pattern drafting, draping, basic costume construction techniques.

049:156 **Stage Makeup** 3 s.h.
Same as 188:156.

049:158 **Concepts in Drawing** 3-4 s.h.
Drawing from topics at the intermediate level; observation, theory, media, form, content; emphasizes personal direction. Prerequisite: 01F:007. Same as 01F:105.

049:159 **Environmental Design I** 3 s.h.
Human interaction with the interior and exterior environment. Offered fall semesters of odd years. Prerequisite: 01D:021 or equivalent or consent of instructor. Same as 01D:137.

049:237 **Scene Design III** 3 s.h.
Complex assignments in theatre, dance, opera; documentation skills, scenery design preparation. Prerequisites: 049:043 or 049:133, and 049:137.

049:238 **Costume Design III** 3 s.h.
Advanced projects in costume design; psychological effect of design elements; preparation of costume designs for production. Prerequisite: 049:138.

049:239 **Lighting Design III** 3 s.h.
Advanced projects in venues such as dance, opera, industrials; preparation of lighting designs for production. Prerequisite: 049:139.

049:240 **Scene Design IV** 3 s.h.
Advanced projects; production problems and techniques; development of clarity and speed in conceptualizing and documenting designs. Prerequisite: consent of instructor.

049:241 **Costume Design IV** 3 s.h.
Analytical and studio skills for advanced projects in widening venues, including music, dance, opera. Prerequisite: consent of instructor.

049:242 **Lighting Design IV** 3 s.h.
Advanced projects in a variety of venues; development of clarity in concepts and design documentation. Prerequisite: consent of instructor.

049:243 **Scene Design V** 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:244 **Costume Design V** 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.

049:245 **Lighting Design V** 3 s.h.
Portfolio development; collaborative. Prerequisite: consent of instructor.
**049:249 Production Management**  
Organization and supervision of theatre productions; resources, procedures for successfully mounting a theatre production or season; personnel, equipment, facility and budget management, scheduling, communication. Prerequisite: stage management M.F.A. enrollment.

**049:251 Internship in Design**  
Experience as designer or assistant designer with a professional theatre, dance, or opera company or with a professional design studio. Prerequisites: theatre design M.F.A. enrollment and consent of instructor.

### Playwriting

**049:165 Advanced Playwriting**  
Continuation of 049:063; original student writing, extensive rewriting; may focus on specific style, genre, or approach. Prerequisite: 049:063 or consent of instructor.

**049:169 Undergraduate Playwriting Workshop**  
Workshop discussion of original full-length plays, collaborative creation of new plays, work with guest artists. Prerequisites: 049:062, 049:063, submission of writing sample, and consent of instructor.

**049:173 Guest Seminar**  
Prerequisite: consent of instructor.

**049:182 Free Style Writing: Poetry, Plays, and Performances**  
Creative writing lab experience in reading, writing, and performing poetry and short plays; expansion of students' horizons of the self; arc of innovation in African American literature from Harlem Renaissance to present, with texts from Langston Hughes and Zora Neale Hurston to Saul Williams and Jill Scott; role of the artist in society and as outsider and insider; shifting perspectives on race, gender, class; musical influences and models, from blues to house music; sensuality, spirituality; artistic reflections on the cultural moment; effects of these on literary form and performance style; students create and perform a work for an audience. Same as 129:182.

**049:269 Playwrights Workshop**  
Development of works by Iowa Playwrights Workshop members. Repeatable. Prerequisite: playwriting or dramaturgy M.F.A. enrollment or consent of instructor.

**049:270 Special Topics in Playwriting**  
Repeatable. Prerequisite: consent of instructor.

**049:271 Orientation to Graduate Studies**  
Repeatable. Prerequisite: theatre arts M.F.A. enrollment.

**049:272 The Collaborative Process**  
Development of new plays, collaboratively created works. Repeatable. Prerequisite: consent of instructor.

**049:275 Collaborative Performance**  
Collaborative experience with advanced artists from varied disciplines that culminates in a final performance; emphasis on sharing and investigating ideas, artistic intent, personal vision, and creating collaborative projects. Same as 137:275, 188:275.

### History, Literature, Dramaturgy

**049:112 History of Theatre and Drama I**  
Major developments in Anglo-European, Indian, Asian, African theatre and drama 3000 B.C.E. to C.E. 1700; sociopolitical, economic, cultural circumstances of original productions. Offered fall semesters. Prerequisite: 049:060. GE: Fine Arts, Historical Perspectives.

**049:113 History of Theatre and Drama II**  
3 s.h.
Continuation of 049:112, 1700 to 1960; revolutionary and modern European theatre, culturally diverse postwar U.S. theatre. Offered spring semesters. Prerequisite: 049:060. GE: Fine Arts, Historical Perspectives.

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>049:116</td>
<td>Dramatic Theory</td>
<td>3 s.h.</td>
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<td>Theoretical questions of interest to dramatists and philosophers in western and nonwestern traditions; metaphysics of play; theories of character, psyche, self; narrative and nonnarrative dramatic forms. Prerequisites: 049:060, 049:112, and 049:113.</td>
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<tbody>
<tr>
<td>049:117</td>
<td>American Drama Since 1900</td>
<td>3 s.h.</td>
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<td></td>
<td>American playwrights and plays after 1900. English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:197.</td>
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<tr>
<td>049:118</td>
<td>American Women Playwrights: 1776-Present</td>
<td>3 s.h.</td>
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<td>How women in the United States have expressed themselves in theatre since 1776; diversity of voices in works by African American, Asian American, Latina, Native American, European American, lesbian playwrights; female-authored drama and production in relation to concurrent male-authored traditions and socioeconomic, political, cultural phenomena. Same as 045:118.</td>
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<tr>
<td>049:119</td>
<td>Dramas of the Spirit</td>
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<td>Western and nonwestern dramatic texts that enact or describe journeys of the human spirit; textual analysis, investigation of the notion of spirit and its relation to dramatic form. Prerequisites: 049:060, 049:112, and 049:113.</td>
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<tr>
<td>049:160</td>
<td>Performing Culture, Language, and Literature</td>
<td>3 s.h.</td>
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<td>Performance of self in everyday life; performance in/of literature; performance as an aesthetic act; performance as a way to understand and represent identities, languages and cultures; students participate in performance as a mode of literary and rhetorical interpretation, cultural and political intervention, and artistic-embodied public presentation. Prerequisites: satisfactory completion of rhetoric and General Education literature requirements. Prerequisites: (for 036:130) 2.60 cumulative g.p.a., 036:001, a theory course (036:070 - 036:076), a research and criticism course (036:060 - 036:068), and a context course (036:040 - 036:042). Same as 010:130, 036:130, 160:130.</td>
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<tr>
<td>049:161</td>
<td>The Arts in Performance</td>
<td>3 s.h.</td>
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<th>Credits</th>
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<tbody>
<tr>
<td>049:181</td>
<td>Medieval Drama</td>
<td>3 s.h.</td>
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<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 008:144.</td>
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<tr>
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<tr>
<td>049:183</td>
<td>Black Feminist Tradition and Culture</td>
<td>3 s.h.</td>
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<td></td>
<td>Survey of selected theoretical texts chronicling shifting perspectives on feminism; comparative interdisciplinary survey of artistic works that reflect such perspectives. Same as 129:183.</td>
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<tr>
<td>049:184</td>
<td>English Renaissance Drama</td>
<td>3 s.h.</td>
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<td></td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Medieval and Early Modern Literature and Culture. PERIOD: Early Literatures Through 17th Century. Same as 008:145.</td>
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<tr>
<td>049:185</td>
<td>Culture, Diversity, and Identity</td>
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<tr>
<td></td>
<td>Nature of personal and cultural identity within a pluralistic society; race, ethnicity, national identity, class, sexuality, and gender as categories of cultural difference. Same as 033:185.</td>
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<tr>
<td>049:186</td>
<td>African American Drama</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: American Literature and Culture. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:186, 129:186.</td>
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<th>Course Code</th>
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<tr>
<td>049:190</td>
<td>African American Theatre I</td>
<td>3 s.h.</td>
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<td></td>
<td>Works by African American playwrights and relevant historical documents, Africa through Black Renaissance; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as 129:175.</td>
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<tr>
<td>049:191</td>
<td>African American Theatre II</td>
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</table>
Works by African American playwrights and relevant historical documents, Black Renaissance to present; themes, history, sociopolitical context; artists forging theatrical paths under oppressive conditions; exploration through discussion, performance; literature-based course, workshop approach. Same as 129:191.

049:192 Culturally Diverse Theatre
3 s.h.
Same as 131:192, 154:192.

049:193 Studies in Drama
3 s.h.
Exploration of a specific period of dramatic literature, or the work of specific authors, or dramatic principles central to playwriting.

049:194 Dramaturgy
3 s.h.
Theory, practice: history in Europe and the United States; relationship to dramatic criticism; practical experience in critical writing, play analysis, dramaturgical research, conceptualization of productions; evaluation, advocacy, and development of new plays; audience relations and education. Prerequisites: 049:060 and consent of instructor.

049:210 Dramaturgy Practicum
arr.
Exploration of theoretical, creative, and practical issues that arise in working dramaturgically on both established and new plays, and in a variety of collaborative processes; practical dramaturgical exercises in script reporting, dramaturgical research, educational programming, season planning, production documentation, and writing of critical and dramaturgical essays for a general audience. Prerequisites: admission to M.F.A. dramaturgy program or consent of instructor.

049:213 Shakespeare
3 s.h.
Same as 008:253.

049:215 Theatrical Analysis: Classical to Romantic
3 s.h.
Representative plays from the Classical to the Romantic periods—in historical context of their original productions, contemporary production potential. Prerequisite: theatre arts M.F.A. enrollment.

049:216 Theatrical Analysis: Modern
3 s.h.
Questions of dramatic form and content examined in-depth through close readings of modern plays.

049:217 Theatrical Analysis: Postmodern
3 s.h.
Diverse postmodern traditions; emphasis on questions of relation of text.

049:294 Dramaturgy Seminar
3 s.h.
Dramatic history, literature, and dramaturgy topics of interest to M.F.A. candidates. Repeatable. Prerequisite: dramaturgy M.F.A. enrollment or consent of instructor.

Workshops, Performances, Special Studies

049:172 Senior Seminar
3 s.h.
Theatre arts capstone seminar; how personal aesthetic relates one's work to great theatrical visionaries of the past and present-day practitioners; research culminating in a collaborative theatre piece. Prerequisites: senior standing and theatre arts major.

049:177 London Performance Study
3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:128.

049:178 New York Performance Study
3 s.h.
Theatrical style, acting, direction, design, as well as business aspects; examination of nine performances.

049:196 Projects in Theatre
Prerequisite: consent of instructor.

049:197 Honors Theatre Arts
arr.
Development and production of a new work for film or television by writers, directors, actors.
049:199 Independent Study  
arr.

049:234 Internship in Stage Management  
1-6 s.h.
Experience as stage manager or assistant stage manager with a professional theatre, dance, or opera company. Repeatable. Prerequisites: stage management M.F.A. enrollment and consent of instructor.

049:298 M.F.A. Thesis  
0-3 s.h.
Work related to M.F.A. thesis projects in theatre arts. Repeatable. Prerequisite: consent of instructor.
Women's Studies

Chair: Jennifer Glass
Professors: Susan Birrell (Health and Sport Studies/Women's Studies/American Studies), Jennifer Glass (Sociology/Women's Studies), Karen Heimer (Sociology/Women's Studies), Ellen Lewin (Women's Studies/Anthropology), Johanna Schoen (History/Women's Studies), Leslie Schwalm (History/Women's Studies), Rosemarie Scoullion (French and Italian/Women's Studies)
Associate professors: Meena Khandelwal (Anthropology/Women's Studies), Johanna Schoen (History/Women's Studies), Leslie Schwalm (History/Women's Studies), Rosemarie Scoullion (French and Italian/Women's Studies)
Associate professors emeritae: Sue Lafky, Margery Wolf
Undergraduate degree: B.A. in Women's Studies
Undergraduate nondegree program: Minor in Women's Studies
Graduate degree: Ph.D. in Women's Studies
Web site: http://www.uiowa.edu/~women

Women's studies is a multidisciplinary department focusing on the study of women in culture, society, history, and literature. Its major goal is to bring to the University community new research on women and gender—research frequently overlooked by traditional disciplines. By taking courses through many departments, students become acquainted with feminist scholarship and its methodologies in the humanities and the social sciences.

Faculty from across the University participate in the Department of Women's Studies as affiliated faculty members (for a complete list, see the department's web site). Other University of Iowa faculty members occasionally offer courses and participate in the department's research, study, and interdisciplinary activities.

Undergraduate Programs

The department offers a Bachelor of Arts and a minor in women's studies.

Bachelor of Arts

The Bachelor of Arts in women's studies requires a minimum of 120 s.h., including 35 s.h. of work for the major. It emphasizes breadth, depth, and interdisciplinary study. Objectives of the major include knowledge of the field's history, facility with major theoretical debates, knowledge of feminist issues outside the United States and Western Europe, knowledge of one major area of feminist scholarly concern, and familiarity with debates in other areas. Students apply this knowledge to an individual research project in their senior year.

Students may declare the major in women's studies at any time. They are advised by the Academic Advising Center until they have completed 131:010 Introduction to Gender, Women's, and Sexuality Studies or 131:055 Gender, Race, and Class in the U.S. Transfer credit is evaluated case-by-case; a maximum of 9 s.h. may be counted toward the degree.

The required 35 s.h. of course work in the major includes the undergraduate core and 18 s.h. of electives. It culminates in the senior research seminar. Other requirements for the major include 2 s.h. of practicum work that reflects the importance of community needs and current social issues in framing questions of women's studies scholarship and in assessing the usefulness of relevant research.

Women's Studies students must complete the College of Liberal Arts and Sciences General Education Program.

The B.A. requires the following.

UNDERGRADUATE CORE

The B.A. core consists of six courses (17 s.h.). Two introductory courses (131:010 Introduction to Gender, Women's, and Sexuality Studies and 131:055 Gender, Race, and Class in the U.S.) are prerequisites for all other courses in the major; they orient students to the major conceptual areas that constitute women's studies as an interdisciplinary field. Gender, Race, and Class in the U.S. (131:055) introduces basic issues of race, class, and gender systems in the United States and provides a foundation for the majors in women's studies. Students take 131:199 Senior Research Seminar in their last semester.

The undergraduate core is as follows.

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>131:010 Introduction to Gender, Women's, and Sexuality Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:055 Gender, Race, and Class in the U.S.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:105 Women's Studies Practicum (students who took 131:010 before fall 2004 for 4 s.h. need only 1 s.h.)</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>131:151 Feminist Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>A women's studies course with an international focus</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>131:199 Senior Research Seminar</td>
<td>3 s.h.</td>
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ELECTIVES

In addition to the undergraduate core, each student chooses 18 s.h. (six courses) of electives, 12 s.h. of which must be upper-level courses chosen in consultation with the student's advisor. Only 6 s.h. of electives may be chosen from lower-level courses, and those must be courses with women's studies course numbers (prefix 131).

Students are encouraged to pursue a course of study that emphasizes both breadth and depth. Students should choose at least three or four courses in a focus area in which they would like to gain deeper knowledge. The area may be within a specific discipline, such as literature, anthropology, or history, which is especially useful for double majors. Students may count up to three courses they have taken to complete a second major toward the major in women's studies.

The specialization area need not be limited to a traditional discipline. Students may seek more specialized education in fields such as sexuality studies or international issues. Breadth also is important; advisors direct students who have taken several courses in one area to take additional electives in another area.

Electives may be chosen from courses offered or cross-referenced in women's studies or from courses in other departments approved for the major. For a list of approved courses, contact the Department of Women's Studies or visit its web site.

Students may request permission to use other upper-level courses as women's studies electives. At least half of the course content must address gender, and as much as possible, the student's written and other work in the course should focus on gender. For more information on requesting permission to use a course, contact the Department of Women's Studies undergraduate advisor.

Four-Year Graduation Plan

The Four-Year Graduation Plan is not available for the women's studies major. Students work with their advisors on individual graduation plans.

Honors

Qualified students may work toward a bachelor's degree with honors in women's studies. Honors students must maintain a g.p.a. of at least 3.50 in women's studies course work and a cumulative University of Iowa g.p.a. of at least 3.33. During the semester before they enroll in the required 131:198 Honors Senior Thesis, students must complete an independent research project under a faculty member's supervision. The project provides the basis for their honors thesis. Contact the Department of Women's Studies undergraduate advisor for more information.

For information about honors study at Iowa, contact the University of Iowa Honors Program.

Minor

The minor in women's studies requires a minimum of 15 s.h. in course work associated with the department, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, 100-level courses are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass.

The minor must include 131:010 Introduction to Gender, Women's, and Sexuality Studies. The 12 s.h. of advanced work may include all 100-level courses, or it may include 131:055 Gender, Race, and Class in the U.S. plus 9 s.h. of 100-level courses. The department strongly recommends that students include 131:151 Feminist Theory in the minor. A maximum of 3 s.h. of work for a major may be counted toward the women's studies minor.

Concentration for Nonmajors

Nonmajors who are interested in women's studies but who chose not to pursue a minor in the department can take a set of electives. Students planning a concentration in women's studies are advised to take 131:010 Introduction to Gender, Women's, and Sexuality Studies.

Graduate Program

Admission to the Doctor of Philosophy in women's studies has been suspended. The department does not offer a master's degree.

Doctor of Philosophy
The Doctor of Philosophy in women's studies requires a minimum of 72 s.h. of graduate credit. The program is committed to feminist research, teaching, and scholarship. It emphasizes the application of theoretical and methodological models developed from the broad range of cultural issues that affect both women and men. While pressing for inclusion of feminist critiques and theories in the curricula of specific disciplines, it also advocates training in interdisciplinary, international feminist approaches.

Students who complete their Ph.D. at Iowa are expected to gain a firm grounding in the history of feminist inquiry, histories of feminisms, and feminist pedagogy; the ability to move easily among the disciplines in their research and teaching; and a broad understanding from interdisciplinary work balanced with depth from concentration in a single discipline.

In order to prepare students to seriously contest traditional practices in a discipline, the Ph.D. requires a minimum of 18 s.h. in one discipline or interdisciplinary field of inquiry, and close work with a faculty member from that discipline on relevant research projects. The curriculum is as follows.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate core</td>
<td>7 s.h.</td>
</tr>
<tr>
<td>Gender and diversity core</td>
<td>9 s.h.</td>
</tr>
<tr>
<td>Women's studies electives</td>
<td>18 s.h.</td>
</tr>
<tr>
<td>Course work in a single discipline or area (e.g., anthropology, history, literature)</td>
<td>18 s.h.</td>
</tr>
<tr>
<td>Dissertation</td>
<td>20 s.h.</td>
</tr>
</tbody>
</table>

**Graduate Core**

- 131:200 Foundations for Feminist Inquiry I 3 s.h.
- 131:205 Graduate Practicum 1 s.h.
- 131:228 Readings: History of Feminisms (Ph.D. candidates enroll for 3 s.h.) arr.

**Qualifying Paper**

Students complete a qualifying paper demonstrating their theoretical and methodological strengths and their intellectual development in feminist studies. They write the paper during the fall semester of their second year and submit it at the beginning of the spring semester.

**Comprehensive Exams**

Once students have successfully completed their qualifying papers, they are eligible to begin the three comprehensive exams that show competence in their chosen specializations, as recommended by their advisory committee and approved by the faculty members who oversee the Ph.D. program. The exams may be submitted any time following completion of the qualifying paper, but generally, they are expected after the third year. When they are completed satisfactorily, the student is admitted to candidacy and can begin work toward the dissertation.

**Admission**

All applicants must have a bachelor's degree with a g.p.a. of at least 3.00. Applicants must demonstrate a commitment to feminist scholarship. A writing sample, a statement of purpose in pursuing the Ph.D., transcripts from all undergraduate and graduate work undertaken, GRE General Test scores, and three letters of recommendation from faculty members familiar with the applicant's academic work must be submitted before an application can be considered.

Applicants whose first language is not English must submit a current TOEFL score. The statement of purpose should describe how the applicant sees herself or himself in the world and why he or she wants to pursue graduate study in general and women's studies in particular. The department uses the statement of purpose and the sample of academic writing to evaluate applicants' ability to present their views forcefully and gracefully, as well as their ability to analyze, critique, and interpret.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Financial Support**

The department strives to offer financial support to its graduate students. Research assistantships and teaching assistantships also are available through other departments. Students who hold assistantships of onequartertime or more pay instate tuition rates.
Women’s Studies Courses

Core Courses

131:010 Introduction to Gender, Women's, and Sexuality Studies  3 s.h.
Introduction to feminist interdisciplinary study of women's lives, with emphasis on race, class, sexual orientation; work, family, culture, political and social change. GE: Cultural Diversity. Same as 154:010.

131:029 First-Year Seminar  1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

131:049 Topics in Women's Studies  3 s.h.

131:055 Gender, Race, and Class in the U.S.  3 s.h.
How the intersection of gender, race, class affects individual experience, national ideology, social institutions; interdisciplinary perspective. GE: Cultural Diversity.

131:105 Women's Studies Practicum  1-2 s.h.
Experience in volunteer work for organizations that provide services for women. Prerequisites: 131:010 and consent of instructor.

131:135 Women, Medicine, and Society  3 s.h.
Ideas about women's biological and social roles, their impact on women as patients and health care providers; differences in class, ethnicity, and sexuality in the healing process; interdisciplinary approach. Offered through Guided Independent Study.

131:149 Transnational Feminism  3 s.h.
Evolution and impact of women's movements in different regions of the Third World.

131:150 Topics in Women's Studies  3 s.h.
Representative topics: American Indian/First Nations Women; population and the environment; feminism and the family; women, health, and healing; women of color. Prerequisite: 131:010.

131:151 Feminist Theory  3 s.h.
Historical and contemporary feminist analyses of women's position in culture and society; variety of theoretical approaches, political perspectives; contemporary issues, controversies. Prerequisite: 131:010.

131:153 Feminist Cultural Studies  3 s.h.
Intellectual/political project of feminist cultural studies; everyday practices and popular discourses critical for the formation of gender and sexuality in the United States. Prerequisite: 131:010 or graduate standing or consent of instructor.

131:163 U.S. Minority Women Writers  3 s.h.
Literature that reflects the experiences of U.S. minority women and women of color; gender, race, ethnicity, religion, sexuality. Prerequisite: 131:010.

131:179 Independent Readings and Research in Women's Studies  arr.
Topic not covered in regular curriculum. Prerequisites: 131:010 and consent of instructor.

131:198 Honors Senior Thesis  arr.
Supervised research, writing. Prerequisites: honors standing, completion of course work for minor in women's studies, and consent of instructor.

131:199 Senior Research Seminar  2-3 s.h.
Individual research projects designed around a shared theme, such as violence against women, or women and the law. Prerequisites: 131:010 or equivalent, and two other women's studies courses; or consent of instructor.
### 131:200 Foundations for Feminist Inquiry I
Theory, critique, methodology, practice. Prerequisite: consent of instructor. 3 s.h.

### 131:205 Graduate Practicum
Practicum experiences in a theoretical context. Repeatable. Prerequisite: consent of instructor. 1 s.h.

### 131:250 Topics in Women's Studies
Special topics in women's studies. 3 s.h.

### 131:279 Independent Study
Prerequisite: consent of instructor. arr.

### 131:425 Ph.D. Thesis
Repeatable. Prerequisite: consent of instructor. arr.

## Cross-Referenced Courses

### 131:018 Gender and Society
Role and status of women in society; sex differences, sex role socialization, theories about origin and maintenance of sexual inequalities, changes in social life cycle of women, implications for social institutions and processes; focus on contemporary United States. GE: Cultural Diversity. Same as 034:018. 3-4 s.h.

### 131:041 Gender Roles and Communication
Gender roles and communication processes; function of communication in gender role development. Communication studies majors may apply this course to the following area requirement. AREA: Practice. Prerequisites: 036:001 and g.p.a. of at least 2.60. Same as 036:041. 3 s.h.

### 131:052 Literature, Culture, and Women
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:052. 2-3 s.h.

### 131:060 Women in Islam and the Middle East
Women in the Islamic community and in non-Muslim Middle Eastern cultures; early rise of Islam to modern times; references to women in the Qur'an and Sunnah, stories from Islamic history; women and gender issues. GE: Foreign Civilization & Culture, Humanities. Same as 032:052. 3 s.h.

### 131:061 Sex and Popular Culture in the Postwar U.S.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. GE: Cultural Diversity. Same as 008:050, 045:060, 154:060. 3 s.h.

### 131:067 Survey of U.S. Women's History
Private lives and public roles of American women of different class, race, ethnic, religious backgrounds, colonial period to present; women's roles in American life, how women have shaped society, culture, politics; family life, work roles, political participation. Same as 16A:067. 3 s.h.

### 131:075 Fertility and Reproduction
Exploration of when, why, how, and with whom Americans bear children, comparison to other developed and developing countries in the world; infertility and its treatments; ethics of surrogacy; voluntary childlessness; rapid rise of nonmarital childbearing in the U.S. and other countries; politics of childbirth; declining populations; rapid aging of rich where women have basically stopped having children. Same as 034:075, 154:075. 3 s.h.

### 131:078 Women, Sport, and Culture
Feminist analysis of girls' and women's sport experiences; reproduction of gender through sport, recent changes in women's intercollegiate athletics, media representations of women in sport, feminist critiques, alternatives to sport. Same as 028:078. 3 s.h.
131:095 Queer Rhetorics
Queer theory: overview; use in communication venues such as television and film, and in everyday life; development of critical thinking skills in relation to cultural constructions of gender, sexuality, race, and other identity categories. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisite: 036:001. Same as 036:095, 154:095.

131:107 Gendering India
Aspects of Indian culture, including nation, family, sexuality, work, and religion, through the lens of gender; Hindu India, differences in region, caste, and class. Same as 113:107.

131:108 Anthropology of Marriage and Family
Classic anthropological theories of kinship and marriage, including topics such as cousin marriage and incest; recent work on new reproductive technologies and transnational marriage. Same as 113:108.

131:109 Women in Antiquity
Attitudes toward women and the role of women in ancient Greek and Roman society; ancient authors, male and female, and modern critics. Same as 20E:109.

131:111 Religion and Women
Sexism and its disavowal in biblical narrative, law, wisdom texts, Gospels, epistles; contemporary impact. GE: Humanities. Same as 032:111.

131:127 South Asian Sexual Cultures
How sexuality is embedded in kinship, economics, nation, and religion in South Asia, with focus on India; chastity, celibacy, romance, arranged marriage, nonnormative sexualities associated with courtesans and hijras. Prerequisite: 113:003 or 113:010 or 131:010 or consent of instructor. Same as 113:127.

131:133 The Anthropology of Women's Health
How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 113:133, 172:133.

131:134 Gender and Indian Diaspora
General theories of diaspora, which have expanded from the Jewish experience to explain African and Asian diasporas; theories in context of Indian diaspora populations and their relationship to the homeland. Same as 113:134.

131:141 History of Feminist Anthropology
Development and evolution of feminist critiques in cultural anthropology; readings from early studies by women ethnographers, classic writings that sought to give women cross-cultural visibility, recent experimental texts. Prerequisite: 113:003 or 131:010. Same as 113:141.

131:142 Mothers and Motherhood
Treatment of motherhood; role of motherhood and devaluation of social status. Same as 113:105.

131:143 Women, Health, and Healing
Women's experience as recipients and providers of health care; intersection of race, class, cultural variation, and women's health; reproductive and nonreproductive health concerns. Same as 113:182.

131:144 Politics of Reproduction
Debates over women's reproductive experience, including its medicalization. Same as 113:140.

131:152 Gender and Sexuality in the Ancient World
Survey of gender and sexuality issues in the social, political, and religious life of ancient Greece and Rome; evidence from literature, the visual arts, archaeology. Prerequisites: completion of rhetoric requirement and sophomore standing. GE: Foreign Civilization & Culture. Same as 154:121, 20E:150.

131:154 Anthropology of Sexual Minorities
Ethnographic studies of sexual minorities and anthropological approaches to lesbian, gay, bisexual, and transgendered persons and communities; behavior, identity, performativity, kinship, globalization, the HIV/AIDS pandemic. Prerequisite: junior, senior, or graduate standing; or consent of instructor. Same as 113:154, 154:182.

131:155 Feminism and Philosophy 3 s.h.
Classical and contemporary Western philosophies concerning questions about the nature of justice, knowledge, value, truth, personal identity; feminist philosophers who develop them. Prerequisite: 131:010. Same as 160:165.

131:157 Gender, Sexuality, and Human Rights 3 s.h.
History of gender and sexuality as components in international human rights activism and law; current debates, representative topics. Same as 154:157, 16W:157.

131:158 Sexuality in the United States 3 s.h.
Same as 16A:154.

131:159 Native American Women and Religious Change 3 s.h.
Native women's diverse experiences and their roles in native societies, examined through contact experiences between native and nonnative peoples; changes in women's roles in context of interactions between native people, missionaries, European colonists, and Americans; approaches to re-imaging women's early contact roles presented in cultural narratives, archaeology, history, ethnography, and missionary records. Same as 032:158, 149:158.

131:160 Work and Family Institutions 3 s.h.
Contemporary problems in the integration of work and family life; origins of work-family conflict in process of industrialization; effects of job-family conflicts on mothers, fathers, children; cross-cultural differences in dealing with work-family conflict. Prerequisite: 034:001 or 034:002 or consent of instructor. Same as 034:162.

131:161 Gender and Violence 3 s.h.
Extent and nature of gendered violence, interpretation of patterns using feminist theory and perspectives on masculinities and heterosexism; examination of interpersonal violence, including criminal violence committed by women and men, violence against women and men (victimization), spousal/intimate partner abuse, youth gangs, bullying in schools, sexual violence, feminism, and genocide. Same as 034:143.

131:162 Latin American Women Writers 3 s.h.
Focus on 20th century; how Latin American women subjects view themselves through literature; textual practice specific to women; psychoanalytic approaches, contemporary feminist criticism. Prerequisite: one Spanish course numbered above 035:100. Same as 035:144.

131:164 American Indian/First Nations Women 3 s.h.

131:165 Women Writing Culture 3 s.h.
Feminist ethnography and other kinds of feminist narratives that "write culture" while pushing the boundaries of how anthropologists define ethnography. Prerequisite: 113:003 or 131:010. Same as 113:180.

131:167 Gender and Sexuality in French Cinema 3 s.h.
Cultural, historical, semiotic approach to studying construction of gender identity and sexual codes in French cinema from 1920s to present. Taught in English. Prerequisite: 009:111 or 048:001 or 048:002 or 131:010 or consent of instructor. Same as 009:148, 048:167.

131:168 French Women Writers 3-4 s.h.
Survey of 20th-century French women writers, with emphasis on Simone de Beauvoir; broad range of literary works by writers including de Beauvoir, Colette, Marguerite Yourcenar, Nathalie Sarraute, Marguerite Duras, Sarah Kofman, Annie Ernaux, Christiane Rachefort; French feminist theorists who followed in de Beauvoir's footsteps, including Helene Cixous, Julia Kristeva, Luce Irigaray. Prerequisite: 009:111 or 131:010. Same as 009:180.

131:169 Changing Concepts of Women in Literature 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:169.

131:170 Philosophy of the Body 3 s.h.
Philosophical treatment of the body; perspectives from classical, modern, and contemporary texts from Western philosophy, and texts from feminist theory, critical race theory, cultural studies, and disability studies. Prerequisite: 131:010. Same as 160:170.

131:171 U.S. Women's History to 1870 3 s.h.
American history through women's eyes; interaction of biology, economics, politics, ideology; how traditional historical generalizations change when women's experience is considered; legal history, women's education. Same as 16A:171.

131:181 Society and Gender in Europe 1200-1789 3 s.h.
Social and gender ideologies as inscribed in patterns of authority (household, church, state); ranges of human endeavor (intellectual, psychological, biological); community organization (social, economic, legal, sexual); their influence on concept of community. GE: Foreign Civilization & Culture. Same as 16E:125.

131:185 Global Women's Cinema 3 s.h.
Introduction to contemporary women's cinema and feminist filmmaking from around the world; emphasis on the post-1968 period and on cinema produced outside the United States. Prerequisite: 048:001 or 048:002 or 131:010. Same as 048:185.

131:188 Prose by Women Writers 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:188.

131:192 Culturally Diverse Theatre 3 s.h.
Same as 049:192, 154:192.

131:194 Introduction to Feminist Criticism 3 s.h.
Introduction to feminist interpretation of literature, feminist literature, feminist theories, and uses of literature in forming feminist politics. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:194.

131:204 Feminist Research Seminar arr.
Feminist research methodologies; how to conduct original research, write a research proposal and research paper, read and criticize others' work. Repeatable. Same as 016:277.

Same as 016:205, 129:205.

131:220 Seminar: Feminist Anthropology 3 s.h.
Theory, methods, research, epistemology from a feminist perspective. Prerequisite: consent of instructor. Same as 113:220.

131:222 Reading Transnational Feminist Theory 3 s.h.
Issues in transnational feminist scholarship, including colonialism, globalization, the nation-state, religion, cultural traditions, and human rights, in global and U.S. domestic contexts; interdisciplinary readings with focus on anthropology, other social sciences. Same as 113:222.

131:223 Feminist Medical Anthropology 3 s.h.
Directions feminists have taken in medical anthropological scholarship; focus on ethnographies that have become classics of the genre and on influential theoretical and applied work. Prerequisite: consent of instructor. Same as 113:223.

History of sexuality within the family, its move into the marketplace; social customs and taboos, methods of birth control and abortion, religion, medical and psychological writings, state policies. Same as 016:225.

131:228 Readings: History of Feminisms arr.
Same as 016:228.

131:233 Readings: Women, Men, and Gender in Modern Europe arr.
131:243 Feminist Cultural Studies  

131:245 Seminar: Feminist Ethnography  
Feminist critiques of traditional ethnographies, informed by contemporary feminisms. Prerequisite: 113:220 or 131:220 or consent of instructor. Same as 113:221.

131:254 History of Women in Sports  
Women's sport involvement from ancient times to present; focus on social class, attitudes, religion, race, ethnicity, medical opinion, economic considerations, political events, educational philosophies that have influenced women's sport participation. Same as 028:278.

131:255 Feminist Ethics in the Contemporary World  
The branch of philosophy known as ethics; theory and application, including classical, contemporary, and feminist approaches and responses to ethical theory. Same as 160:265.

131:256 Gender Stratification Seminar  
Occupational gender segregation; gender gap in pay; role of family caregiving in women's lower pay; devaluation of caregiving work; comparable worth. Same as 034:256.

131:258 Feminist Critical Theory  
Questions of difference, the body, agency, identity politics, gender performativity, power as both productive and oppressive; perspectives from texts in poststructuralist and feminist philosophy. Same as 160:258.

131:264 Postcolonial Feminist Theory  
Role of colonial histories and postcolonial legacies on past and contemporary relations of power in varied geographical contexts, through interdisciplinary feminist perspective; processes of gender and racialization relative to uneven global flows of media, capital, people. Prerequisite: 131:151 or cultural studies course. Same as 010:264, 160:280.

131:266 Gender Inequalities  
Current sociological research on public policies that affect family life and well-being; divorce and child custody policies, teen pregnancy and abortion, family poverty, child care and work-family policies. Same as 034:266.

131:270 Readings in the History of Women and Gender in the U.S.A.  
Same as 016:270.

131:274 Postcolonial Women's Writing  
Same as 008:274.

131:285 Readings: Gender in Latin American History  
Same as 016:285.

131:287 Readings: African American Women's History  
Same as 016:287, 129:287.

131:290 Feminist Perspectives on Biology and Culture  
Explores feminist analyses of the cultural and historical situatedness of scientific knowledge, topics range from human evolution and primatology to developmental biology and genetics to nuclear physics. Same as 113:290.
Tippie College of Business

Dean: William C. (Curt) Hunter
Senior associate dean: Charles H. Whiteman
Associate dean, School of Management: Jarjisu Sa-Aadu
Associate dean, undergraduate program: Lon D. Moeller
Degrees: B.B.A., M.Ac., M.B.A., Ph.D.
Undergraduate nondegree programs: Certificate in Entrepreneurship, International Business, Risk Management and Insurance; Minor in Business Administration
Web site: http://www.tippie.uiowa.edu

The Henry B. Tippie College of Business is composed of six academic departments: accounting, economics, finance, management and organizations, management sciences, and marketing.

The college's undergraduate and graduate programs are accredited by AACSB International--the Association to Advance Collegiate Schools of Business.


Undergraduate Programs

The Tippie College of Business offers the Bachelor of Business Administration (B.B.A.) with majors in accounting, economics, finance, management, management information systems, and marketing, and it collaborates with the College of Liberal Arts and Sciences to offer an undergraduate major for Bachelor of Arts and Bachelor of Science students; see the appropriate Tippie College of Business department sections in the Catalog for information about each major. The college also offers joint degrees with the College of Engineering and the College of Liberal Arts and Sciences; see "Joint Degrees" below.

The college offers the undergraduate Certificate in Entrepreneurial Management, Certificate in International Business, and Certificate in Risk Management and Insurance; see "Certificates" below. It collaborates with the College of Engineering to offer the Certificate in Technological Entrepreneurship, and the John Pappajohn Entrepreneurial Center collaborates with the College of Liberal Arts and Sciences to offer the Certificate in Performing Arts Entrepreneurship; see "Undergraduate Programs" in the College of Engineering section of the Catalog and Performing Arts Entrepreneurship in the College of Liberal Arts and Sciences section.

B.B.A. students may earn minors in disciplines outside the Tippie College of Business, and the college offers a minor in business administration for non-business students; see "Minors" below.

Undergraduate Advising

All business students are advised at the Undergraduate Program Office in the Tippie College of Business. Pre-business students are advised at the University's Academic Advising Center and at the college's Undergraduate Program Office. Assignment to the Undergraduate Program Office for advising depends on a student's grade-point average, completion of certain courses, and/or the number of semester hours completed. Walk-in hours and scheduled appointments are available at both offices. For more information on advising, contact the college's Undergraduate Program Office or the UI Academic Advising Center.

Honor Code

Integrity and honesty are essential to success in all facets of life. The purpose of the Tippie College of Business Honor Code is to promote honorable and ethical behavior.

Bachelor of Business Administration

The Bachelor of Business Administration requires a minimum of 120 s.h. of credit, including at least 48 s.h. earned in business courses and at least 60 s.h. earned in nonbusiness courses.

B.B.A. students must earn 30 s.h. in residence following admission to the Tippie College of Business. At least 24 s.h. in courses offered by the business college and at least two-thirds of the semester hours in the student's major must be earned at The University of Iowa. Nonresident instruction includes course work at colleges and universities other than The University of Iowa.

To graduate, B.B.A. students must have a cumulative g.p.a. of at least 2.00 in all college course work attempted, all college course work attempted in business, all college course work attempted in the major, all course work attempted at The University of Iowa, all business course work attempted at The University of Iowa, and all course work in the major attempted at The University of Iowa.
Common B.B.A. Requirements

B.B.A. candidates must satisfy the following minimum common requirements or approved equivalents. For approved equivalents, consult the college's Undergraduate Program Office.

GENERAL EDUCATION REQUIREMENTS

Students may not count courses taken to fulfill General Education Program requirements toward other requirements for the B.B.A.

Rhetoric (010:001 and 010:002, or 010:003) 4-8 s.h.
Natural sciences 3 s.h.
Historical perspectives 3 s.h.
Global and cultural studies 3 s.h.
Humanities 6 s.h.
Social sciences (excluding 06E:001 and 06E:002) 3 s.h.

PREREQUISITES FOR ADMISSION TO THE COLLEGE

06A:001 Introduction to Financial Accounting 3 s.h.
06A:002 Managerial Accounting 3 s.h.
06E:001 Principles of Microeconomics 4 s.h.
06E:002 Principles of Macroeconomics 4 s.h.
22M:017 Calculus and Matrix Algebra for Business 4 s.h.
22S:008 Statistics for Business 4 s.h.

BUSINESS CORE

06B:100 Foundations of Business 3 s.h.
06E:071 Statistics for Strategy Problems 3 s.h.
06F:100 Introductory Financial Management 3 s.h.
06J:047 Introduction to Law 3 s.h.
06J:048 Introduction to Management 3 s.h.
06K:070 Computer Analysis 3 s.h.
06K:100 Operations Management 3 s.h.
06M:100 Introduction to Marketing Strategy 3 s.h.

MAJOR STUDY AREA

All B.B.A. students must complete a major area of study. The college offers majors in accounting, economics, finance, management, management information systems, and marketing. The requirements for each major are established by the college's individual departments; see the Catalog's Tippie College of Business department sections.

Students with Associate of Arts Degrees

Students who receive an Associate of Arts (A.A.) from community colleges participating in the Iowa Community College/Regents Articulation Agreement are considered to have met all high school unit requirements, General Education Program requirements in rhetoric, natural sciences, social sciences, historical perspectives, and humanities, but not the global and cultural studies requirements. The program of study for which the student was awarded the A.A. must have included:

- a minimum of 60 s.h. (or 90 quarter hours) of credit acceptable toward graduation from The University of Iowa (mathematics courses comparable to 22M:001 Basic Algebra I, 22M:002 Basic Algebra II, and 22M:003 Basic Geometry are not accepted toward graduation);
- completion of the agreed-upon group of courses at the community college; and
- a g.p.a. of at least 2.00.

However, completion of an Associate of Arts does not guarantee admission to the Tippie College of Business. See "Admission to the B.B.A." later in this section for a complete list of admission requirements.

Students who use the provisions of the articulation agreement are granted a maximum of 60 s.h. of transferable credit
from two-year colleges toward the 120 s.h. required for a B.B.A. Credit earned for the A.A. beyond the 60 s.h. transferable maximum is used in computing the student's grade-point average, and it may be used to satisfy course requirements, but it does not count toward the B.B.A. Transfer credit for business courses taken during the first and second years is counted toward the B.B.A. only if such courses are usually offered as lower-division courses at The University of Iowa.

Transfer Courses

Students who have taken courses at another institution that are similar to those approved for the common business requirements at Iowa may request that these courses be evaluated for transfer credit. Students who transfer fewer hours than needed to meet a common business requirement may use only approved courses to complete the remainder of the requirement. Only junior- and senior-level courses taken at accredited four-year institutions may be used to satisfy common business course requirements numbered 100 and above. Students must complete a minimum of 24 s.h. and at least two-thirds of the course work in the major at The University of Iowa. Guided Independent Study may be counted toward all requirements for graduation, subject to approval by the student's major department.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan.

Note: The following checkpoints are designed for students who enter the University as first-year pre-business or business students. In order to stay on the plan, students must maintain the grade-point averages required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline. The Four-Year Graduation Plan is not available to students who choose to pursue a double major in the college or students who are in a combined degree program.

Students must take 06B:100 Foundations of Business during their first year after admission to the Tippie College of Business.

Before the third semester begins: 06E:001 Principles of Microeconomics or 06E:002 Principles of Macroeconomics, 22M:017 Calculus and Matrix Algebra for Business, and 22S:008 Statistics for Business, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 06A:001 Introduction to Financial Accounting, 06A:002 Managerial Accounting, and 06E:001 Principles of Microeconomics or 06E:002 Principles of Macroeconomics (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major (varies by major)

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

Honors Program

The Tippie College of Business Honors Program offers outstanding students the opportunity to undertake independent study and to work closely with faculty members and other honors students. Students choose one of two paths toward graduation with honors: complete the junior honors seminar, generally in the spring of the junior year, and complete the honors thesis, generally in the fall semester of the following academic year; or complete the honors seminar in the fall of senior year, and complete the thesis in the spring of the same academic year.

Students must have a g.p.a. of at least 3.50 to enter the Tippie Honors Program. To earn the B.B.A. with honors, students must successfully complete all college and honors program requirements with a g.p.a. of at least 3.50 in all courses taken at Iowa, all business courses taken at Iowa, all courses taken (including transfer courses), and all business courses taken (including transfer courses).

Pre-business students interested in the honors program are encouraged to participate in the University of Iowa Honors Program until they are admitted to the business college.

Double Majors in Business

Students may earn a double major by meeting the requirements of more than one major in the Tippie College of Business. They receive one B.B.A. with two majors. The Four-Year Graduation Plan is not available to students pursuing a double major.
Students may declare only one major when they apply to the college, but they may add a second major on the first
day of classes during their first semester or session after admission to the college, or any time after that. Students
may declare a maximum of two programs (programs include majors, certificates, and minors). Students who have
officially declared double majors have access to degree evaluations for both majors. They also have access to both
sets of major courses, with some limitations, during early registration. Students may not change majors in order to
have priority registration for more than two majors at one time. A student must be in good academic standing in order
to declare a second major. See Double Majors--Policies and Procedures.

Joint Degrees

Joint B.B.A./Liberal Arts and Sciences Degree

The Tippie College of Business and the College of Liberal Arts and Sciences offer a joint degree program in which
students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the
Tippie College of Business; and a Bachelor of Arts (B.A.), Bachelor of Science (B.S.), Bachelor of Fine Arts (B.F.A.), or
Bachelor of Music (B.M.) from the College of Liberal Arts and Sciences.

All students in a joint program must complete requirements for both degrees, including all General Education
requirements.

The second-grade option is not available to all students in joint degree programs. Students should consult with their
advisors before pursuing a second-grade option.

Joint degree students are assigned two advisors, one in the Tippie College of Business Undergraduate Program
Office, the other in their major in the College of Liberal Arts and Sciences.

To enter a joint degree program, students must have approval from the Tippie College of Business and must be
admitted to both colleges. Interested students should see an advisor in the college's Undergraduate Program Office.

To learn about liberal arts and sciences majors, visit College of Liberal Arts and Sciences in the Catalog and select
majors from the college index.

Joint B.B.A./B.S.E.

The Tippie College of Business and the College of Engineering offer a joint degree program in which students earn two
University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of
Business and a Bachelor of Science in Engineering (B.S.E.) from the College of Engineering.

All students in the joint program must complete all requirements for both degrees, including all General Education
requirements. They must enroll in appropriate mathematics and engineering courses early in their course of study in
order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and
social sciences count toward the B.B.A. and the B.S.E., students may count a single course toward both degrees.

B.B.A./B.S.E. students usually meet the degree requirements of both colleges in about five years; time required
depends on the student's choice of major study areas.

The second-grade option is not available for all students in joint degree programs. Students should consult with their
advisors before pursuing a second-grade option.

Students are assigned two advisors, one in the Tippie College of Business Undergraduate Program Office, the other in
their College of Engineering major department.

To enter the joint degree program, students must have approval from the Tippie College of Business and must be
admitted to both colleges. Interested students should see an advisor in the college's Undergraduate Program Office.

For information about the B.S.E., including degree requirements, see Bachelor of Science in Engineering (College of
Engineering) in the Catalog.

Minors

Minors for Business Students

Undergraduate students in the Tippie College of Business may earn a minor in another University of Iowa college. For
example, students interested in international business might choose a foreign language as a minor. For the minor
requirements, students should consult with an advisor in the appropriate department. Students may declare a minor on
ISIS. To have the minor recorded on their transcripts, students must complete the "minor" section on the B.B.A.
Application for Degree before submitting the form to the Office of the Registrar early in their final semester, or when
they apply for the degree using ISIS.

Minor in Business Administration (for Non-business Students)
The minor in business administration requires 37 s.h., including at least 12 s.h. taken in the Tippie College of Business. The minor is open to UI undergraduates who are not majoring in business. Students must maintain a g.p.a. of at least 2.00 in the minor overall and in all courses in the minor taken at The University of Iowa. Course work in the minor may not be taken pass/nonpass.

The following courses, or their equivalents, satisfy all requirements for the minor. Please refer to ISIS for a current list of prerequisites.

- 22M:017 Calculus and Matrix Algebra for Business 4 s.h.
- 22S:008 Statistics for Business 4 s.h.
- 06A:001 Introduction to Financial Accounting 3 s.h.
- 06A:002 Managerial Accounting 3 s.h.
- 06E:001 Principles of Microeconomics 4 s.h.
- 06E:002 Principles of Macroeconomics 4 s.h.
- 06F:100 Introductory Financial Management 3 s.h.
- 06J:047 Introduction to Law 3 s.h.
- 06J:048 Introduction to Management 3 s.h.
- 06K:070 Computer Analysis 3 s.h.
- 06M:100 Introduction to Marketing Strategy 3 s.h.

For a list of approved substitutions and additional details about the minor, see Business Minor on the Tippie College of Business web site.

Students who will have completed all requirements for the minor when they graduate should indicate a business administration minor on the Application for Degree before they submit the form to the registrar's office early in their final semester, or when they apply for the degree using ISIS.

Certificates

The Tippie College of Business is a partner in offering several certificate programs for University of Iowa undergraduate students. Together with the John Pappajohn Entrepreneurial Center, it offers the Certificate in Entrepreneurial Management, and it collaborates with the College of Engineering to offer the Certificate in Technological Entrepreneurship; see Entrepreneurship in the Catalog.

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the Certificate in Risk Management and Insurance; see Risk Management and Insurance in the Catalog.

The Tippie College of Business and the College of Liberal Arts and Sciences (CLAS) offer the Certificate in International Business; see International Business in the Catalog. The John Pappajohn Entrepreneurial Center also collaborates with CLAS to offer a certificate; see Performing Arts Entrepreneurship (College of Liberal Arts and Sciences) in the Catalog.

Admission

Admission to the B.B.A.

The Tippie College of Business offers three paths to admission: direct admission, accelerated admission, and standard admission. All students admitted to the College of Business must sign the Tippie College of Business Honor Code. Students who meet the grade-point average requirement may be denied admission upon evidence of postsecondary academic misconduct or other violations of the honor code. Students are required to meet with the associate dean, undergraduate program, to discuss incidents of academic misconduct.

Admission standards are set by the Undergraduate Program Committee. All admission appeals are reviewed by the Undergraduate Program Office. Prospective students must submit acceptance of admission offers and all transcripts showing course work that satisfies the Tippie College of Business admission requirements to the University's Office of Admissions by the 10th day of classes. Letters of recommendation are not accepted. For more information about application and admission, contact the Undergraduate Program Office.

Direct Admission

Direct admission is designed to enable highly qualified high school students to enter the college directly after high school. Applicants must have a composite ACT score of 27 or higher and a high school g.p.a. of 3.70 or higher to qualify; see Admission Policies on the Tippie College of Business web site for information about admission requirements.

In order to declare a major in accounting, students must have a University of Iowa g.p.a. and a cumulative g.p.a. of at
least 3.00; a g.p.a. of at least 2.75 and no grade below C on all prerequisites; and a 2.67 (B-minus average) in 06A:001 Introduction to Financial Accounting and 06A:002 Managerial Accounting.

Students who receive direct admission to the college are eligible to apply to the Tippie Scholars Program. Admission is highly competitive and is based on high school record and an application essay. Application deadline is February 1. The Tippie Scholars Program provides a scholarship, specialized programming, a dedicated advisor, a first-year seminar offered by the Tippie College of Business, and priority registration. Tippie scholars must maintain a University of Iowa g.p.a. of at least 3.33 each semester to remain in the program.

Accelerated Admission

Accelerated Admission is available for students admitted to The University of Iowa for fall 2007 or later who have earned 59 or less than 60 s.h. of credit; have been enrolled at the University for at least one semester; have earned at least 12 s.h. of University of Iowa credit with a passing mark; and have completed the calculus and statistics prerequisites for admission to the college and one of the economics prerequisites (or their equivalents) with no grade below C in any completed prerequisite course. The six prerequisite courses for admission to the college are listed under "Common B.B.A. Requirements"; see Bachelor of Business Administration above.

Students must have a University of Iowa cumulative g.p.a. of at least 2.75. They also must have a g.p.a. of at least 2.75 in their completed prerequisites for admission to the college; all prerequisites for admission to the college that the student has taken are used in calculating the prerequisite grade-point average. In order to declare a major in accounting, students must have a University of Iowa g.p.a. and a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 2.75 and no grade below C on all prerequisites; and a 2.67 (B-minus average) in 06A:001 Introduction to Financial Accounting and 06A:002 Managerial Accounting.

There are no appeals for accelerated admission.

Standard Admission

Standard Admission is guaranteed to students who have reached junior standing, who meet the course requirements for admission, and who have earned a g.p.a. of at least 2.75 on the six prerequisite courses for admission to the college. The prerequisites are listed under "Common Requirements" for the Bachelor of Business Administration; see the Tippie College of Business section of the Catalog.

Students also must have a g.p.a. of at least 2.75 on all college course work and on all course work at The University of Iowa and have earned no grade below C on any of the prerequisites for admission to the college. Admission to the accounting major is guaranteed only to applicants who have a University of Iowa g.p.a. and cumulative g.p.a. of at least 3.00; a g.p.a. of at least 2.75 and no grade below C on all prerequisites; and a 2.67 (B-minus average) in 06A:001 Introduction to Financial Accounting and 06A:002 Managerial Accounting.

Applications for standard admission must be submitted online at http://www.biz.uiowa.edu/upo/admissions. Application deadlines are April 1 for summer and fall admission and November 1 for spring admission. Applicants for fall admission must state whether they intend to enroll in summer course work that should be included in their admission review. Applicants may not be admitted for the three-week winter session. Applicants transferring from another university are not held to the application deadlines; they may apply at any time. Applicants who do not meet the criteria for guaranteed admission still may apply to the college, and their applications may be considered by the admissions committee. Grades from winter session courses may not be used for consideration for admission in the immediate spring session, and grades from three-week summer session courses may not be used for consideration for admission in the immediate summer session.

Nondegree Admission

Students visiting from another institution who wish to enroll in undergraduate courses to earn credit that they can transfer to their home institution may be granted admission as undergraduate nondegree students. Nondegree students are not guaranteed access to specific courses; they must have the approval of the undergraduate program director in the Tippie College of Business and may earn no more than 9 s.h. on nondegree status.

Reentry

Students who have been absent from the University for 12 months or more and who left in good standing must apply to the University's Office of Admissions for reentry. Good standing is defined as not on probation or dismissed for any reason.

Students who have been absent for less than 12 months are not required to apply for reentry. They should contact the Tippie College of Business Undergraduate Program Office for advising before they register.

Students who have been enrolled in another college or university since leaving The University of Iowa are required to submit official transcripts along with their application for reentry. Completed application materials must be received at least two weeks before classes open. Admission is approved regardless of any admission requirement changes for
reentering students who left the University in good standing.

Students who have been dismissed from the Tippie College of Business due to unsatisfactory scholarship, academic misconduct at The University of Iowa or at another institution, or a violation of the Tippie College of Business Honor Code must file a petition with the Tippie College of Business requesting reinstatement.

**Academic Rules and Procedures**

**Academic Recognition**

**Dean's List**

Students in the undergraduate Tippie College of Business, Colleges of Engineering, Liberal Arts and Sciences, and Nursing, and undergraduate programs in the Carver College of Medicine who achieve a g.p.a. of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work (including Guided Independent Study courses) during a semester (or summer session) and who have no hours of I (incomplete) or O (no grade reported) for that enrollment are recognized by inclusion on the Dean's List for that semester (or session).

**President's List**

University of Iowa undergraduate students who achieve a g.p.a. of 4.00 on 12 s.h. or more of University of Iowa graded course work (including Guided Independent Study courses) and who have no hours of I (incomplete) or O (no grade reported) for two consecutive semesters (including summer session) are recognized by inclusion on the President's List.

**Graduation with Honors**

Graduation with honors recognizes high scholastic achievement based on grades and on completion of academic work beyond the requirements of the student's major. To graduate with honors, students must maintain a cumulative, University of Iowa, business, and UI business g.p.a. of 3.50 and must successfully complete an honors project under the supervision of a faculty member. See "Honors Program" under Bachelor of Business Administration.

**Graduation with Distinction**

Graduation with distinction recognizes high scholastic achievement based on grades. The Office of the Registrar certifies to the Tippie College of Business dean the names of students eligible to graduate with distinction. The college awards degrees "with highest distinction" to students in the highest two percent of the graduating class, "with high distinction" to students in the next highest three percent, and "with distinction" to the next highest five percent. Ranking is based on students' grade-point averages for all college-level study undertaken before their final registration.

To be eligible to be considered for graduation with distinction, a student must complete 60 s.h. in residence as an undergraduate at The University of Iowa; 45 s.h. of that must be completed before the final registration.

**Credit and Grading**

**Credit by Examination**

Students may earn up to 30 s.h. of credit by examination by taking selected tests from the College-Level Examination Program (CLEP) and the Advanced Placement (AP) program of the College Board. For information on the CLEP and AP examinations, contact the University's Evaluation and Examination Service. The Tippie College of Business Undergraduate Program Office has information on scores, credit, and course duplicates for all Advanced Placement and CLEP tests accepted by the college.

**Maximum Schedule**

During early registration, students admitted to the Tippie College of Business may register for a maximum of 16 s.h. Course schedules that exceed 16 s.h. require approval from the Undergraduate Program Office. After early registration, students may register for a maximum of 18 s.h. Course schedules of more than 18 s.h. for a fall or spring semester, 9 s.h. for the six- or eight-week summer session, or 3 s.h. for the three-week session require approval from the Undergraduate Program Office.

**Adding and Dropping Courses**

Students may drop courses, except College of Law courses, any time before the deadline published in the University's academic deadline calendar. Deadlines are different for regular and off-cycle courses. See Academic Deadlines for
The University of Iowa on the Office of the Registrar web site (http://www.registrar.uiowa.edu).

Students must obtain approval from the college that offers the course in order to request permission to add or drop a course after these deadlines.

Administrative Drops for Lack of Prerequisites

Students are responsible for making sure that they have satisfied all prerequisites for any course for which they register. Instructors and departments also have the option to drop a student from a course if the student has not satisfied the required prerequisites. Administrative drops must be processed by the first eight calendar days of the semester; the first two calendar days of the winter session, the three-week summer session, or the start of an off-cycle course; or the first four days of the six- or eight-week summer session. Administrative drops are made without assignment of a W (withdrawn). Students who are dropped from courses are notified. Students should not assume that they have been dropped from a course because they do not have the prerequisites.

Administrative Drops for Nonattendance

Instructors have the option to drop a student who has missed the first two class periods of a course, unless the student has offered an acceptable reason for beginning the course late. Administrative drops must be processed by the first eight calendar days of the semester; the first two calendar days of the winter session, the three-week summer session, or the start of an off-cycle course. These administrative drops are made without assignment of a W (withdrawn). Students who are dropped from courses are notified. Students should not assume that they have been dropped from a course because they have not attended it.

Pass/Nonpass

Up to 15 s.h. of course work required for a B.B.A. may be taken pass/nonpass with the consent of an advisor and the instructor. Students may count a maximum of 8 s.h. of pass/nonpass credit in the last 60 s.h. of course work. Students must be in good academic standing to be eligible for the pass/nonpass option. A maximum of two pass/nonpass courses may be taken in one semester.

Courses taken pass/nonpass may not be used to satisfy general education, core, or major business requirements. (Major business requirements include any course that fulfills a major course requirement or is offered by the major department.) Pass/nonpass registration must be completed during the first 10 days of a fall or spring semester or the first one-and-one-half weeks of a summer session, and it requires the approval of the advisor and the instructor. For courses taken pass/nonpass, an earned grade of C-minus or higher is recorded as a P; an earned grade of D-plus or lower is recorded as an N. Pass/nonpass credit is not included in grade-point-average calculations.

Satisfactory/Fail, Satisfactory/Unsatisfactory

Certain courses are offered satisfactory/fail (S/F) or satisfactory/unsatisfactory (S/U). All students registered for these courses receive one of these marks.

Special forms are not necessary to register for S/F or S/U courses, since all students enrolled in such courses automatically receive an S, an F, or a U.

Semester hours of S or U graded course work are not used in computing grade-point averages, but hours of F graded course work are used.

Semester hours of S graded course work are counted as semester hours earned toward graduation; semester hours of F or U graded course work do not count as semester hours earned toward graduation.

A maximum of 15 s.h. of S credit from The University of Iowa is accepted toward a bachelor's degree.

Second-Grade-Only Option

The second-grade-only option is not available to junior and senior students in the Tippie College of Business, including those in combined degree programs. Students in the direct and accelerated admission programs are eligible to apply for the second-grade-only option during their first two years of enrollment; they must follow the second-grade-only grading rules established by the College of Liberal Arts and Sciences. The second-grade-only option may be used only for courses in which the student has earned a grade of C-minus or lower. See the CLAS Student Academic Handbook or visit the college's web site (http://www.clas.uiowa.edu).

Incomplete Grades

Instructors may report a mark of I (incomplete) only if the unfinished part of the student's work in a course other than research, thesis, or independent study is small; if the work is unfinished for reasons acceptable to the instructor; and if
the student's standing in the course is satisfactory.

Students should not re-enroll in a course for which they have an incomplete. Incomplete grades must be removed by completing the unfinished part of the work. Faculty and students are encouraged to state clearly in a written agreement how the incomplete is to be completed. Both the faculty member and the student should keep a record of the written agreement.

Failure to remove the incomplete before the end of the next full semester, excluding summer and winter sessions, results in replacement of the I with a grade of F, regardless of whether the student is enrolled during that semester. A grade change may be submitted to convert a grade of F to another letter grade, with the instructor's approval.

Guided Independent Study

University of Iowa Guided Independent Study is counted as resident credit and may be applied to all requirements for graduation, subject to approval by the student's major department. Guided Independent Study courses can be taken any semester, up to four courses at a time.

Pre-business students who have performed poorly in an on-campus course that also is offered through Guided Independent Study may retake the course through Guided Independent Study for the second-grade-only option. Likewise, pre-business students who have performed poorly in a Guided Independent Study course may retake the course on campus for the second-grade-only option.

Probation and Dismissal

Students are placed on academic probation when their grade-point average in any of the following categories falls below 2.00: all course work taken, all course work taken at The University of Iowa, all business course work taken, all business course work taken at The University of Iowa, all course work taken to satisfy requirements for the major(s), and all course work taken at The University of Iowa to satisfy requirements for the major(s). In probation decisions, a 3 s.h. minimum is used to calculate the grade-point average for all course work taken to satisfy requirements for the major(s), and all course work taken at The University of Iowa to satisfy requirements for the major(s).

When all of the above grade-point averages equal or surpass 2.00, students are removed from probation. Students usually are allowed only one session to return to good academic standing. They are required to meet with an academic advisor and sign an academic probation contract. Students on academic probation who withdraw registration after the deadline for dropping courses may be dismissed.

Students may be dismissed from the college at any time for unsatisfactory scholarship. While some probationary period usually precedes a dismissal, students in good academic standing who complete a term with extremely unsatisfactory grades may be placed on academic probation or dismissed immediately. Students dropped from the college for poor scholarship may petition for permission to reregister, but usually only after one year following the end of the term in which they were dismissed.

Reinstatement

Students dismissed for unsatisfactory scholarship for the first time ordinarily are not permitted to register again for one year. Students dismissed for the second time may or may not be granted a second reinstatement. Requests for reinstatement must be made in writing and should be addressed to the associate dean in the Undergraduate Program Office. Arrangements for a reinstatement interview must be made with the Undergraduate Program Office. The interview must take place between March 1 and July 1 for reinstatement for fall semester, or between October 1 and December 1 for reinstatement for spring semester. Reinstatements are limited to one major and may include a limit on the number of semester hours the student may take upon reinstatement. Late requests are deferred to the following semester.

Students who are permitted to register following dismissal are registered on academic probation and ordinarily are allowed two semesters to achieve good standing. Very poor academic work in the first semester of a reinstatement may result in dismissal at the close of that semester.

Returning for Baccalaureate Degrees

Returning for a Second Business Major

Graduates who have a B.B.A. from The University of Iowa and who are not enrolled in a graduate or professional program may complete the requirements for another business major except accounting (see "Reentry" earlier in this section). Those interested in pursuing a degree in accounting must be admitted to the Graduate College to earn the Master of Accountancy degree; see Accounting.

Students who return to The University of Iowa to complete another business major must meet the requirements for that major. It is their responsibility to notify the Office of the Registrar upon completion of the requirements for the second
major so that a notation can be placed on their permanent record.

Students who hold a degree from another college or university may not complete a second business major at The University of Iowa. They may apply for admission to complete an additional degree (see "Returning for an Additional Bachelor's Degree").

Returning for an Additional Bachelor's Degree

Students who hold a bachelor's degree from another college at The University of Iowa and who are not enrolled in a graduate or professional program may return for an additional bachelor's degree from the Tippie College of Business. They must satisfy all requirements for undergraduate admission to the business college. Once admitted, they must satisfy all requirements for the B.B.A. in their chosen major.

For information about pursuing an additional bachelor's degree in accounting, see "Accounting as a Second Degree" below.

Students with Baccalaureates From Other Institutions

Students with a bachelor's degree from another college or university may apply for admission to The University of Iowa to earn an additional undergraduate degree from the Tippie College of Business. The requirements are the same as those listed under "Returning for an Additional Bachelor's Degree" above.

For information about pursuing an additional bachelor's degree in accounting, see "Accounting as a Second Degree" below.

Accounting as a Second Degree

Graduates who have a non-business bachelor's degree, either from The University of Iowa or from another college or university, may in some cases be considered for admission to the Tippie College of Business to pursue a second undergraduate major in accounting. Individuals interested in earning a second degree with a major in accounting should contact the Department of Accounting to discuss the B.B.A. or Master of Accountancy (M.Ac.); see Accounting in the Catalog.

Students may not earn a second major in accounting if they already have a B.B.A. from The University of Iowa or any undergraduate business degree from another college or university.

Graduate Programs

The Tippie College of Business offers two interdepartmental graduate programs: Master of Business Administration (M.B.A.) and Doctor of Philosophy (Ph.D.) in business administration. M.B.A. candidates may pursue a second graduate degree in another college.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue an M.A.

Doctor of Philosophy

The Doctor of Philosophy in business administration requires a minimum of 72 s.h., including accepted transfer credit. The program prepares students for research positions in business and government or for research and teaching positions at academic institutions. It is flexible, permitting students to choose a specialization area according to their interests. Course work and related experience enable students to achieve competence in economic theory, statistical methods, and behavioral science as well as expertise in a major and minor study area. Students also have opportunities to develop research and teaching skills.

Ph.D. course work consists of prerequisites (as necessary), the Ph.D. core, major and minor study areas, and dissertation research, described in brief below. For more detailed information about Ph.D. requirements, contact the individual Tippie College of Business departments, visit their web sites, or visit http://www.biz.uiowa.edu/phd.

CORE COURSES

Core courses develop research competence and provide background for specialized study. Doctoral students consult with their advisors to develop a study plan that reflects the individual students' background and interests and satisfies core requirements.

MAJOR STUDY AREA
At least 12 s.h. of approved doctoral-level courses must be completed in one of the following areas: accounting, finance, human resource management, management information systems, marketing, operations management, organizational behavior, or quantitative methods.

MINOR STUDY AREA

Students must complete a minimum of 9 s.h. of doctoral-level courses beyond the Ph.D. core course requirements in one of the major study areas listed above or in a concentration outside the Tippie College of Business.

COMPREHENSIVE EXAMINATIONS

Students must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both, at the discretion of their major department.

DISSERTATION

Students must present a dissertation proposal at a forum attended by dissertation committee members and open to interested faculty members and graduate students, as established by the student's major department. Researching and writing the dissertation typically require two years of full-time effort.

FINAL EXAMINATION

Ph.D. candidates defend the dissertation in an oral examination attended by dissertation committee members and open to interested faculty members and graduate students.

Admission

Applicants to the Ph.D. program must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must take the Graduate Record Examination (GRE) General Test or the Graduate Management Admission Test (GMAT) and have their scores sent to the University in order to be considered for admission. The Departments of Finance, Management and Organizations, Management Sciences, and Marketing accept test scores for either the GRE or GMAT. The Department of Accounting accepts only GMAT scores and the Department of Economics accepts only GRE scores. Required scores on these tests and their weight in admission decisions vary by department.

Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL) and have their scores sent to the University.

Applicants must submit a completed Application for Graduate Admissions, official transcripts from all institutions attended, official test scores, and three letters of recommendation. Applications must be complete before admission decisions can be made.

Admission is for fall entry. Applications should be submitted as early as possible and no later than the following deadlines.

Accounting: January 15
Economics: January 15
Finance: January 15
Management and Organizations: February 1
Management Sciences: February 15
Marketing: January 15

Other Graduate Programs

The college offers the Master of Accountancy (M.Ac.) degree and a Ph.D. in economics; see Accounting and Economics in the Catalog.

Centers and Institutes

Emmett J. Vaughan Institute of Risk Management and Insurance

The Tippie College of Business, in partnership with the Iowa insurance industry, has established the Emmett J. Vaughan Institute of Risk Management and Insurance to provide innovative education and research in modern risk management and insurance.

The institute collaborates with the Department of Finance to offer the Certificate in Risk Management and Insurance.
The certificate program provides undergraduate students with a foundation for careers in corporate risk management, risk management consulting, employee benefits management, insurance brokerage, and underwriting. See Risk Management and Insurance in the Catalog.

**Hawkinson Institute of Business Finance**

The Hawkinson Institute of Business Finance facilitates career opportunities in the investment banking and financial services industries for Tippie College of Business students. It also links faculty, alumni, and students with professionals in the financial services sector.

The Institute selects high-achieving undergraduates to train for positions in the financial services industry, works with top firms who do not typically recruit at Iowa, and supports finance research through faculty grants. It also presents instructional seminars and participates in outreach efforts to industry.

**Institute for Economic Research**

The Institute for Economic Research responds to requests for information and analysis from the Department of Management, State of Iowa, with focus on the analysis and forecasting of economic conditions and state tax revenues. It also responds to requests for information and analysis from the Board of Regents, State of Iowa, with focus on the costs of higher education.

**Institute for International Business**

The Institute for International Business is dedicated to the development and advancement of knowledge related to international business. The institute coordinates and augments resources at the Henry B. Tippie College of Business to provide students at all levels with the education, experience, and skills they will need for success in the global marketplace. The institute facilitates international internships, collaborates with departments in developing courses with international content, and assists programs in implementing short courses overseas.

**Iowa Electronic Markets Institute**

The Iowa Electronic Markets Institute supports scholarship in prediction markets and experimental economics. It operates the Iowa Electronic Markets (IEM), online futures markets where contract payoffs are based on real-world events such as political outcomes, companies' earnings per share, and stock price returns. The Iowa Electronic Markets are known internationally as the genesis of modern prediction markets and are used as research and teaching tools.

**John Pappajohn Entrepreneurial Center**

The John Pappajohn Entrepreneurial Center (JPEC) has developed a comprehensive, interdisciplinary program that combines advanced course work with experiential learning for University of Iowa students. The program prepares students to launch new ventures, manage growing companies, and apply entrepreneurship concepts in their careers.

The entrepreneurship curriculum incorporates experiential learning opportunities in which students apply their knowledge and skills in their own ventures or in emerging or growing Iowa companies. JPEC's Bedell Entrepreneurship Learning Laboratory is dedicated to student entrepreneurs pursuing the creation of new ventures. Students can also participate in a wide variety of extra-curricular programs such as business plan competitions, lecture series, conferences, workshops, a learning community, and the I-Envision student organization.

Undergraduate students in several University of Iowa colleges may earn the Certificate in Entrepreneurial Management (or a program-specific entrepreneurship certificate) in addition to their bachelor's degrees; see Entrepreneurship in the Catalog. Several advanced entrepreneurship courses are available to all graduate and professional students across campus and in the MBA PM program. See Master of Business Administration Program in the Catalog.

JPEC also offers the Certificate in Entrepreneurial Management through distance education. Participants may choose from a variety of course delivery options, including introductory course work offered through a collaboration with Iowa community colleges, online course work that incorporates regular interactive sessions with Iowa faculty and students, and local experiential learning projects. Students may earn the certificate alone or in conjunction with the Bachelor of Applied Studies or the Bachelor of Liberal Studies.

The center offers several programs for entrepreneurial businesses and individuals, including student field study projects, training, consulting, seminars, and conferences. In partnership with the Jacobson Institute for Youth Entrepreneurship, it provides training and a specialized curriculum to Iowa high school teachers to foster the development of innovative, creative, and entrepreneurial young Iowans. JPEC also partners with Iowa community colleges to deliver entrepreneurship training statewide.

**Judith R. Frank Business Communications Center**

The Judith R. Frank Business Communications Center offers a comprehensive program of training in written and oral communication to undergraduates in the Tippie College of Business. The center's staff includes graduate students with
expertise in writing and undergraduate peer tutors who have completed a peer tutor training course.

The center provides one-on-one tutoring on written papers, projects, and case studies. Its oral communications center offers consultations on oral presentations and interviewing skills.

The center's course-dedicated consulting program helps faculty and students in courses that require writing projects. Communication center staff work closely with faculty members to study assignments, develop handouts, make targeted presentations, and respond individually to student writing.

The team and collaborative writing initiative focuses on team assignments, which are a critical part of the Tippie College of Business curriculum. The initiative trains students to become final project editors and share documents throughout the writing process.

The Business Communications Center also sponsors a series of credit courses for undergraduates, including 06B:110 Successful Business Presentations, 06B:115 Technical and Professional Editing, 06B:140 Business Writing, Corporate Communications (offered through 06B:101 Topics in Business), and the peer tutor training course, 06B:130 Business Communication Internship I.

Pomerantz Career Center

Career development and on-campus recruiting services are provided by the Marvin A. and Rose Lee Pomerantz Career Center. The center's career advisors and online resources provide University undergraduate students and alumni with help on résumés, cover letters, career choice, internship and job searches, employer research, interviewing skills, negotiation of job offers, and more. The center also presents several fall and spring semester career fairs. Campus recruitment is facilitated through web-based software, and on-campus interviews occur throughout the year for full-time internship positions as well as mock interviews. The center also offers career-related courses and a career leadership academy. Contact the Pomerantz Career Center for more information.

RSM McGladrey Institute of Accounting Education and Research

The RSM McGladrey Institute of Accounting Education and Research fosters educational excellence in accounting at The University of Iowa and encourages high-quality research by Iowa accounting faculty members. The institute sponsors varied educational initiatives and activities, including an annual national speaker series and the biennial Sidney Winter Lecture Series. It helps faculty members initiate and carry out research projects, as well as to disseminate the findings to the academic, business, government, and professional accounting communities.

Small Business Development Center

Since 1981, The University of Iowa Small Business Development Center has played an important role in helping enterprising Iowans manage or start their own successful businesses. The center provides support for small business owners and entrepreneurs. Its personnel are trained to meet the varied needs of small business management, including market, business, financial, and human resource planning; cash flow analysis; product commercialization; market research and analysis; strategic planning; international trade; and advertising and public relations.

Tippie Business Solutions Center

The Tippie Business Solutions Center provides the opportunity for MBA students to engage in strategic consulting projects with companies. The firms involved range from mid-sized Iowa based companies to fortune 500 companies. The center brings together diverse teams possessing a variety of skills, knowledge, and experience. They apply rigorous business tools and techniques in order to research circumstances surrounding a business problem for a real-world client. Students meet with representatives from the client company, analyze the situation, and present recommendations.

Facilities and Resources

The Henry B. Tippie College of Business is located in the John Pappajohn Business Building, at the heart of the campus. The Pappajohn Business Building contains seminar and conference rooms, a computer laboratory, two auditoriums, three computer classrooms, a behavioral laboratory, a restaurant (Pat's Diner), the Marvin A. Pomerantz Business Library, and a variety of classroom facilities.

Extensive research materials for business and economics are maintained in the University's Main Library, and the facilities of Information Technology Services are available to all students. The computer laboratory in the John Pappajohn Business Building serves the instructional programs of the college, and the staff maintains a current library of computational programs, CD-ROMs, and data tapes to accommodate users' needs.

Alumni Relations

Relationships with alumni are maintained by staff in the Undergraduate Program Office and the Tippie School of
Management Office and by the college’s assistant director of alumni engagement. The college circulates its magazine, B@I (Business at Iowa), to individuals who support the college, and each semester it hosts alumni events ranging from individual visits to receptions on campus and in cities nationwide and worldwide. Members of the Business Student Ambassadors, an undergraduate student organization, serve as hosts and guides for alumni who visit the college. The Young Alumni Board works to strengthen ties between the college and younger alumni.

**Interdepartmental Undergraduate Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>06B:010</td>
<td>Tippie Scholars Seminar</td>
<td>1-3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to majors and academic departments, research opportunities, and professional enrichment activities in the Tippie College of Business. Prerequisite: enrollment in Tippie Scholars Program.</td>
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<tr>
<td>06B:020</td>
<td>Tippie College Direct Admit Seminar</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Facilitates a successful transition to college; Tippie college traditions and expectations, academic and personal success skills; majors and academic opportunities; advisor and advisee responsibilities; campus resources; career exploration skills; ethics; team and group work; multicultural and global society existence. Prerequisite: admitted to the direct admission program.</td>
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<tr>
<td>06B:030</td>
<td>Diversity Awareness for Business</td>
<td>1-3 s.h.</td>
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<tr>
<td></td>
<td>Opportunity to develop awareness and appreciation of multiculturalism and diversity; importance of diversity in the workplace; development of skills for working in a diverse environment; development of cultural competencies through classroom activities, discussions, group projects, readings, and personal reflections.</td>
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<tr>
<td>06B:040</td>
<td>Academic Leadership Seminar</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Orientation to service learning; service learning project, professional enrichment activities, academic skill enhancement; for students living on the Leadership Community in Business and Entrepreneurship Learning Community Floor.</td>
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<tr>
<td>06B:050</td>
<td>Competitive Intelligence Resources</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Search concepts and sources specific to business information; print, CD-ROM, online search services, the Internet.</td>
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<tr>
<td>06B:060</td>
<td>Tippie Senate</td>
<td>1 s.h.</td>
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<td></td>
<td>For elected student representatives on the Tippie Senate. Prerequisite: consent of Undergraduate Program Office.</td>
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<tr>
<td>06B:080</td>
<td>Business Student Ambassador Seminar</td>
<td>1 s.h.</td>
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<td></td>
<td>Experiences as a Business Student Ambassador providing tours of the John Pappajohn Building, acting as hosts at college functions, providing information and assistance to visiting groups, assisting student recruitment activities. Prerequisite: admission to Tippie College of Business and acceptance as a Business Student Ambassador.</td>
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<tr>
<td>06B:090</td>
<td>International Perspectives Program Seminar</td>
<td>1-3 s.h.</td>
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<tr>
<td></td>
<td>Requirements of the International Perspectives Program; planning for business and foreign language majors, study abroad, academics, and career goals; exploration of international business, current world and business events. Prerequisite: admission to the International Perspectives Program.</td>
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</tr>
<tr>
<td>06B:100</td>
<td>Foundations of Business</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Concepts associated with the competitive business environment and skills for attaining professional employment, developing a successful career within an organization, and expanding a career within an industry; career search, persuasive communication, team building. Prerequisite: 30 s.h. completed.</td>
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<tr>
<td>06B:101</td>
<td>Topics in Business</td>
<td>arr.</td>
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<tr>
<td>06B:105</td>
<td>Administrative Practicum</td>
<td>arr.</td>
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<td></td>
<td>Development and implementation of projects and programs for the business college’s undergraduate program, such as curriculum issues, marketing of academic and nonacademic programs, assisting in development and preparation for teaching courses. Repeatable. Prerequisite: admission to Tippie College of Business.</td>
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<tr>
<td>06B:110</td>
<td>Successful Business Presentations</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Oral presentation skills in business settings.</td>
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<tr>
<td>06B:115</td>
<td>Technical and Professional Editing</td>
<td>1-3 s.h.</td>
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Introduction to editorial skills required for production of high-quality professional and technical documents; hands-on workshop.

06B:120 Web Portfolio: Bizfolio Project 1 s.h.

06B:130 Business Communication Internship I arr.
Opportunity for students to earn academic credit for serving as a peer tutor, an orientation and training assistant, or an administrative intern in the Judith R. Frank Business Communications Center. Repeatable. Prerequisite: consent of instructor.

06B:131 Business Communication Internship II 3 s.h.
Continuation of 06B:130; opportunity for students to earn academic credit for serving as a peer tutor, an orientation and training assistant, or an administrative intern in the Judith R. Frank Business Communications Center. Prerequisites: 06B:130 and consent of instructor.

06B:140 Business Writing 3 s.h.
Development of communication and analytical skills; cover letter and résumé preparation, interviewing techniques, editing and proofreading, research, presentations, entrepreneurship, creative problem solving; group business plan presentation, individual written business plan.

06B:187 Global Business Perspectives 3 s.h.
Classroom component of summer internships in London, Madrid; preparation for internships; value of international work assignments, work as part of cross-cultural teams, skills and perspectives for living and working in a culturally diverse world; students set goals for professional development, analyze the cultural and political environment of their internship sites, develop a professional portfolio. Corequisite: 409:112.

06B:194 Honors Seminar 1-3 s.h.
Research topics and methods in business. Prerequisites: business honors standing and consent of business honors director. Same as 06E:194.

06B:195 Honors Thesis in Business 3 s.h.
Independent student project directed by faculty or staff advisor; culminates in a thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06B:199 Academic Internship arr.
Professional internship experience with associated academic content (e.g., paper, course work). Repeatable. Prerequisite: consent of associate dean, undergraduate program.
The Department of Accounting offers a broad education that prepares undergraduate and graduate students for careers in public accounting, private industry, government, nonprofit organizations, and academia.

Professional Program in Accounting

The Professional Program in Accounting draws on curricula that provide a strong base of traditional technical subject matter and the skills needed for solving complex business problems. This framework of study enables students to continue professional growth over the entire span of their careers. The program emphasizes communication skills and provides the academic background required for leadership positions in business, government, and public accounting. It also qualifies students to take the Certified Public Accountant (CPA) and Certified Management Accountant (CMA) examinations.

The Professional Program in Accounting leads to a Bachelor of Business Administration in accounting, which requires 120 s.h. of credit (see "Undergraduate Program" below), and the Master of Accounting, which requires 30 s.h. of graduate credit (see "Graduate Programs" later in this section). Students are granted the B.B.A. upon successful completion of the junior and senior years of the Professional Program in Accounting, and the M.Ac. after successful completion of 30 s.h. beyond the B.B.A.

Undergraduate Program

The Department of Accounting offers the Bachelor of Business Administration in accounting for students admitted to the Professional Program in Accounting. Undergraduate accounting majors are subject to the probation and dismissal rules described in the Tippie College of Business section of the Catalog and are governed by the Tippie College of Business Honor Code.

The B.B.A. is not sufficient preparation for CPA licensure in states that have passed a 150 hour law (all states except California, Colorado, New Hampshire, and Vermont).

Bachelor of Business Administration

The Bachelor of Business Administration in accounting requires a minimum of 120 s.h., including at least 25 s.h. of work for the major. The major in accounting is for undergraduate students admitted to the Professional Program in Accounting. Course work in the program provides concentrated coverage of professional accounting subjects and closely related topics in commercial law, business, and information systems.

To enter the Professional Program in Accounting, undergraduates must complete 60 s.h. of course work at The University of Iowa (or equivalent course work at another institution) and must be admitted to the Tippie College of Business. Students already admitted to the professional program at the University of Iowa may wish to enter the Tippie College of Business; students who wish to enter the Tippie College of Business must complete the following prerequisite courses before admission to the Professional Program in Accounting.

Students must complete the following prerequisite courses before admission to the Professional Program in Accounting.

- **06A:001 Introduction to Financial Accounting** 3 s.h.
- **06A:002 Managerial Accounting** 3 s.h.
- **06E:001 Principles of Microeconomics** 4 s.h.
- **06E:002 Principles of Macroeconomics** 4 s.h.
- **22M:017 Calculus and Matrix Algebra for Business** 4 s.h.
- **22S:008 Statistics for Business** 4 s.h.
Professional Program in Accounting requirements for the junior and senior years are as follows. For B.B.A. common requirements, see Bachelor of Business Administration in the Tippie College of Business section of the Catalog.

**JUNIOR YEAR**

**Fall Semester**

06A:131 Income Measurement and Asset Valuation
06A:133 Introduction to Taxation
06A:150 Professional Orientation Seminar Series (must be taken during first or second semester in the professional program)
06B:100 Foundations of Business (taken first year after admission to the college)
Two business core requirements

The business core requirements (06F:100 Introductory Financial Management, 06J:047 Introduction to Law, 06J:048 Introduction to Management, 06K:100 Operations Management, 06M:100 Introduction to Marketing Strategy) may be taken in any sequence, preferably before the senior year; 06J:047 Introduction to Law is a prerequisite to 06A:148 Business Law, so it should be taken before spring semester of the senior year. Students must complete 06B:100 Foundations of Business during their first year after admission to the Tippie College of Business.

**Spring Semester**

06A:132 Valuation of Financial Claims
06K:180 Applied Information Systems
Two business core requirements
Elective

Due to the overlap in course content, accounting majors may not receive degree credit for 06A:120 Financial Accounting and Reporting and 06A:113 Taxes and Business Decisions.

**SUMMER: GMAT AND ADMISSION TO THE M.AC.**

Students who intend to continue in the Professional Program in Accounting after receiving the B.B.A. should take the Graduate Management Admission Test (GMAT) during the summer before their senior year, as preparation for applying to the Master of Accountancy program.

Students who plan to earn 3-6 s.h. of internship credit for 06A:190 Experiential Learning during the spring semester of their senior year must be admitted to the M.Ac. program by December 1 of their senior year. Those who do not participate in 06A:190 Experiential Learning may apply to the M.Ac. program after December 1 of their senior year. See "Application Deadlines" below.

**SENIOR YEAR WITH INTERNSHIP**

Seniors who wish to include a formal accounting internship in their program take 06A:190 Experiential Learning during spring semester of their senior year. To earn 3-6 s.h. of credit for the internship, they must be admitted to the M.Ac. Program (the fifth year of the Professional Program in Accounting) by December 1 of their senior year and must have departmental approval before the beginning of their internship semester.

Students who participate in the internship normally must attend a summer session before or after their senior year in order to complete the B.B.A. requirements.

Students who choose the internship option should pursue the following study plan.

**Fall Semester**

06A:130 Accounting for Management Analysis and Control
06A:144 Auditing
06A:148 Business Law (or summer if offered)
One business core requirement

One of these:
06A:141 Advanced Tax Topics  3 s.h.  
06A:145 Advanced Financial Accounting  3 s.h.  

Spring Semester  
06A:190 Experiential Learning  3-6 s.h.  

Summer Session  
06A:148 Business Law (if not already taken)  3 s.h.  
Electives  6 s.h.  

**SENIOR YEAR WITHOUT INTERNSHIP**  
Students who do not wish to include the internship program (06A:190 Experiential Learning) during their senior year pursue the following study plan.  
Students must choose one of the following accounting electives during their senior year.  
06A:141 Advanced Tax Topics  3 s.h.  
06A:145 Advanced Financial Accounting  3 s.h.  

Fall Semester  
06A:144 Auditing  3 s.h.  
One accounting elective  3 s.h.  
One business core requirement  3 s.h.  
Two electives  6 s.h.  

Spring Semester  
06A:130 Accounting for Management Analysis and Control  3 s.h.  
06A:148 Business Law  3 s.h.  
One accounting elective (if not taken fall semester)  3 s.h.  
Two or three electives  6-9 s.h.  

**OPTIONAL ACCOUNTING ELECTIVE**  
All undergraduates, whether admitted to the M.Ac. program or not, may take 06A:199 Academic Internship for 1 s.h. in fall, spring, or summer. Department consent is required.  

**Graduate Programs**  
The Department of Accounting offers the Master of Accountancy (M.Ac.) and a Doctor of Philosophy (Ph.D.) in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Accounting web site.  
The department also offers a joint M.Ac./J.D. with the College of Law; see "Joint M.Ac./J.D." later in this Catalog section.  
Graduate students in accounting are subject to the probation and dismissal rules of the Graduate College and are governed by the Tippie College of Business Honor Code.  

**Master of Accountancy**  
The Master of Accountancy requires 30 s.h. beyond the B.B.A. The program permits students to specialize in accounting areas according to their interests and objectives. It builds on the technical skills acquired in the undergraduate program, broadens students' perspectives of the role of accounting in organizations and decision making, and further develops written and oral communication skills.
Students from a variety of academic backgrounds enter the M.Ac. program. Those who enter with an undergraduate degree in accounting can expect to complete the degree in 12 months. Those who enter with a nonaccounting undergraduate degree typically require four semesters to complete the M.Ac. Study plans are adjusted to reflect each student's particular academic background; see "Course Work for Students Without Undergraduate Degrees in Accounting" later in this section.

The M.Ac. is a nonthesis program. Course work focuses on the conceptual and economic foundations of accounting with applications to current and emerging problems of professional practice. M.Ac. students also have the opportunity to acquire expertise in one of four specialization areas: financial accounting/auditing, management information systems, taxation, and managerial accounting.

The required 30 s.h. must include at least 12 s.h. earned in graduate-level accounting courses and at least 21 s.h. earned in 200-level courses.

Courses leading to specialization areas and those required for the core program are as follows. Because of the cross-disciplinary nature of the subject matter included in the specialization areas, courses in a number of other departments are included.

SPECIALIZATION IN FINANCIAL ACCOUNTING/AUDITING

Accounting Courses

Total of 12 s.h.
All of these:
- 06A:221 Financial Reporting: Theory and Practice 3 s.h.
- 06A:230 Advanced Auditing 3 s.h.
- 06A:245 Financial Information and Capital Markets 3 s.h.

One of these:
- 06A:220 Design and Use of Cost Management Systems 3 s.h.
- 06A:231 Taxes and Business Strategy 3 s.h.

Finance Courses

Total of 6 s.h.
- 06N:225 Managerial Finance (requires consent of M.B.A. office) 3 s.h.
- One additional 200-level finance course 3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.
- 06K:226 Visual Basic Programming (if not already taken) 3 s.h.
- 06K:230 Database Systems 3 s.h.

General Electives

Total of 6-9 s.h.

SPECIALIZATION IN MANAGEMENT INFORMATION SYSTEMS

Due to the timing of course offerings, students who do not begin the M.Ac. program in the summer session should take a computer programming course while they are undergraduates. This decreases the number of required management information systems courses and increases electives by 3 s.h. in the M.Ac. program.

Accounting Courses

Total of 12 s.h.
- 06A:220 Design and Use of Cost Management Systems 3 s.h.
Two of these:
06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.
06A:231 Taxes and Business Strategy 3 s.h.

One of these (not already taken):
06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.
06A:231 Taxes and Business Strategy 3 s.h.
06A:241 Tax Research 3 s.h.
06A:245 Financial Information and Capital Markets 3 s.h.

Management Information Systems Courses

Total of 9-12 s.h.
06K:226 Visual Basic Programming (if not already taken) 3 s.h.
Three 200-level information systems courses (06K or 22C) 9 s.h.

General Electives

Total of 6-9 s.h.

SPECIALIZATION IN TAXATION

Accounting Courses

Total of 9 s.h.
Two of these:
06A:220 Design and Use of Cost Management Systems 3 s.h.
06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.

One of these (not already taken):
06A:220 Design and Use of Cost Management Systems 3 s.h.
06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.
06A:241 Tax Research 3 s.h.
06A:245 Financial Information and Capital Markets 3 s.h.

Taxation Courses

Total of 12 s.h.
06A:231 Taxes and Business Strategy 3 s.h.
06A:241 Tax Research 3 s.h.
College of Law tax courses 6 s.h.

General Electives

Total of 9 s.h.
College of Law courses (prefix 091) follow a different calendar than do business courses. Some courses may require consent of instructor.
SPECIALIZATION IN MANAGERIAL ACCOUNTING

Accounting Courses

Total of 12 s.h.

06A:220 Design and Use of Cost Management Systems 3 s.h.

Two of these:

06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.
06A:231 Taxes and Business Strategy 3 s.h.

One of these (not already taken):

06A:221 Financial Reporting: Theory and Practice 3 s.h.
06A:230 Advanced Auditing 3 s.h.
06A:231 Taxes and Business Strategy 3 s.h.
06A:241 Tax Research 3 s.h.
06A:245 Financial Information and Capital Markets 3 s.h.

Management Information Systems Courses

Total of 3-6 s.h.

06K:226 Visual Basic Programming (if not already taken) 3 s.h.
06K:230 Database Systems 3 s.h.

Nonaccounting Business Electives

Two 200-level business electives 6 s.h.

General Electives

Total of 6-9 s.h.

CORE PROGRAM COURSE REQUIREMENTS

Students who do not wish to pursue a specialization area must complete 30 s.h. beyond the B.B.A. At least 15 s.h. must be earned in graduate-level accounting courses and at least 21 s.h. must be earned in 200-level courses. The following courses are required.

Accounting Courses

Total of 15 s.h.

06A:220 Design and Use of Cost Management Systems (taken spring semester) 3 s.h.
06A:221 Financial Reporting: Theory and Practice (taken fall semester) 3 s.h.
06A:230 Advanced Auditing (taken spring semester) 3 s.h.
06A:231 Taxes and Business Strategy (taken fall semester) 3 s.h.

One of these (not already taken):

06A:241 Tax Research 3 s.h.
06A:245 Financial Information and Capital Markets 3 s.h.
Management Information Systems Courses

Total of 3-6 s.h.

06K:226 Visual Basic Programming (if not already taken) 3 s.h.
06K:230 Database Systems 3 s.h.

General Electives

Total of 9-12 s.h.

Course Work for Students Without Undergraduate Degrees in Accounting

Courses taken by students who enter the program with a nonaccounting bachelor's degree are determined by each student's background and interest area. In addition to meeting the core program requirements for the M.Ac., students typically take a combination of undergraduate and M.B.A. courses to remove academic deficiencies in quantitative methods, business, and accounting. Students with a bachelor's degree in another area of business typically are required to take 45-51 s.h. in order to complete the M.Ac. program. Those with degrees outside of business and with no accounting courses typically are required to take 57-60 s.h.

CPA Examination and the Iowa Accountancy Act

The Iowa Accountancy Act that became effective in January 2001 requires individuals who wish to take the CPA examination to have a bachelor's degree, 24 s.h. of business course work, and 24 s.h. of accounting course work beyond 06A:001 Introduction to Financial Accounting.

Admission

Admission to the M.Ac. program is competitive. The admissions committee reviews applications individually, considering quantitative aspects (grade-point average and GMAT scores) and qualitative aspects of each applicant's background and professional experience (if applicable) to assess the applicant's potential for academic success and professional growth.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Application materials must include the following: the Application for Graduate Admission; official transcripts of all undergraduate and graduate course work submitted by each institution the applicant has attended; official scores on the Graduate Management Admission Test (GMAT); a supplemental application form with essay responses; a résumé and cover letter; and at least three letters of reference from former instructors or employers. (B.B.A. accounting students at The University of Iowa are not required to provide letters of reference.)

Applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

University of Iowa undergraduate accounting students are encouraged to take the Graduate Management Admission Test (GMAT) the summer before their senior year. Those who participate in the formal accounting internship during their senior year (06A:190 Experiential Learning) must apply to the M.Ac. early enough to ensure admission by December 1 of their senior year. Students who do not participate in 06A:190 may apply to the M.Ac. after December 1 of their senior year. See "Application Deadlines" below.

For complete information about application procedures, contact the University's Office of Admissions or the Department of Accounting.

APPLICATION DEADLINES

The Department of Accounting admissions committee reviews completed M.Ac. application files (which must include official GMAT scores) on five dates: March 1, April 15, July 15, October 1, and December 1. Applications are reviewed on these dates regardless of whether the applicant plans to begin the M.Ac. program in the fall semester (August), spring semester (January), or summer session (June). Final Graduate College application deadlines are as follows.

Fall semester entry: July 15 (April 15 for international students)
Spring semester entry: December 1 (October 1 for international students)
Summer session entry: April 15 (March 1 for international students)

Students who wish to apply for a teaching assistantship must apply to the M.Ac. program no later than March 1.
Joint M.Ac./J.D.

The Department of Accounting and the College of Law offer the joint Master of Accountancy/Juris Doctor. The joint M.Ac./J.D. requires a minimum of 18 s.h. of graduate course work in accounting. Students in the program may count up to 12 s.h. of College of Law courses as electives for the M.Ac., and up to 12 s.h. of graduate accounting courses as electives for the J.D.; see Juris Doctor in the College of Law section of the Catalog.

Separate application to each degree program is required. Applicants must be admitted to each program before they may be admitted to the joint program.

Doctor of Philosophy

Students majoring in accounting may earn a Ph.D. in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Accounting web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Application materials must include the applicant's score on the Graduate Management Admission Test (GMAT).

Faculty

The department's faculty members stay current in their discipline by producing and disseminating accounting-related knowledge. They keep abreast of the latest developments in the field of education and the profession by participating in educational conferences and seminars and publishing in leading academic journals.

Accounting Courses

Primarily for Undergraduates

06A:001 Introduction to Financial Accounting
3 s.h.
Accounting and financial reporting procedures used by business and not-for-profit entities; emphasis on accounting concepts and use of accounting information in making economic decisions. Prerequisite: sophomore or higher standing.

06A:002 Managerial Accounting
3 s.h.
Basic topics in cost behavior, measurement, accumulation; use of cost data for relevant analysis, budgeting, performance evaluation. Prerequisites: 06A:001, 06E:001, and 22M:017.

For Undergraduate and Graduate Students

06A:101 Directed Readings in Accounting
arr.
Individual guided readings in accounting topics. Prerequisite: admission to Professional Program in Accounting.

06A:113 Taxes and Business Decisions
3 s.h.
Tax concepts; emphasis on recognizing tax-planning opportunities, pitfalls inherent in common management decisions. Prerequisites: 06A:002 or equivalent, and nonaccounting major or consent of advisor.

06A:120 Financial Accounting and Reporting
3 s.h.
External financial reporting practices in context of decisions by management, current and potential stockholders, financial analysts; emphasis on interpretation, use of financial statements. Prerequisites: 06A:002 or equivalent, and nonaccounting major or consent of advisor.

06A:130 Accounting for Management Analysis and Control
3 s.h.
Advanced topics in cost estimation, measurement, accumulation; use of cost data for decision making, performance evaluation in multi-unit organizations. Prerequisites: 06E:071, 06K:070, and admission to Professional Program in Accounting.

06A:131 Income Measurement and Asset Valuation
3 s.h.
Accounting rules that determine how economic events and transactions are described in published financial reports; emphasis on revenue and expense recognition, asset valuation, accrual accounting model. Prerequisite: admission to Professional Program in Accounting or pre-accounting major.

06A:132 Valuation of Financial Claims 3 s.h.
Current and long-term liabilities and stockholders' equity, off-balance sheet financing, cash flow statement, earnings-per-share, financial instruments. Prerequisite: 06A:131.

06A:133 Introduction to Taxation 3 s.h.
Federal income taxation; individual, corporate, partnership income tax laws, regulations; emphasis on developing a broad perspective on structure, administration, rationale of federal income tax system. Prerequisite: admission to Professional Program in Accounting or pre-accounting major.

06A:141 Advanced Tax Topics 3 s.h.
Taxation of corporations, partnerships from organization through liquidation; relative merits of conducting business through partnership, corporation, proprietorship, S corporation; introduction to tax research. Prerequisites: 06A:133, 06K:180, and senior standing.

06A:144 Auditing 3 s.h.
General framework underlying auditing, role of audit standards in planning and conduct of audits, effect of regulation, ethics, liability on audit practices. Prerequisites: 06A:132, 06A:150, 06E:071, 06K:180, and senior standing.

06A:145 Advanced Financial Accounting 3 s.h.
Accounting and reporting standards for business combinations, including mergers, consolidations, and multinational enterprises; accounting for partnerships, business segments, transactions denominated in foreign currency, including hedges using foreign currency derivative instruments; reporting standards for interim financial statements and fund accounting applied to government and nonprofit entities. Prerequisites: 06A:132 and senior standing.

06A:148 Business Law 3 s.h.
Contracts, sales, debtor-creditor relations, business organizations, other aspects of law applied to business. Prerequisites: 06J:047 and senior standing.

06A:149 Financial Statement Analysis 3 s.h.
How to analyze published financial statements; practical experience using financial statement information to assess accounting quality, historical performance, forecasted performance, credit risk, firm value. Prerequisite: 06A:120.

06A:150 Professional Orientation Seminar Series 1 s.h.
Accounting careers, advising, curriculum, M.Ac. program, internships, CPA examination, Beta Alpha Psi, UI Employment Expo. Offered fall semesters. Corequisite: 06A:131 or 06A:132.

06A:170 Special Topics in Accounting 3 s.h.
Prerequisite: consent of instructor.

06A:190 Experiential Learning 3-6 s.h.
Professional internship experience with related course work (papers, oral presentation). Prerequisites: admission to M.Ac. program and consent of undergraduate accounting advisor.

06A:195 Honors Thesis in Accounting 3 s.h.
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06A:199 Academic Internship arr.
Professional internship experience. Prerequisite: consent of undergraduate accounting advisor.

Primarily for Graduate Students

06A:220 Design and Use of Cost Management Systems 3 s.h.
Development of cost accumulation and reporting systems that complement a firm's strategy and structure; how activity-based cost management systems increase competitiveness by helping a firm manage its costs, processes, people. Prerequisite: 06A:130 or 06A:235 or consent of instructor.

**06A:221 Financial Reporting: Theory and Practice** 3 s.h.
Corporate accounting choices in framework of traditional accounting theory, economic consequences, firm valuation. Prerequisites: 06A:132 and graduate standing in business.

**06A:230 Advanced Auditing** 3 s.h.
Advanced issues such as ethics, independence, regulation and litigation, audit evidence, models of audit testing. Prerequisites: 06A:144 and graduate standing in business.

**06A:231 Taxes and Business Strategy** 3 s.h.
Effect of taxes on business decisions, including investment strategies, financial policies; emphasis on tax planning, evaluating tax consequences of business decisions. Prerequisites: 06N:215 or equivalent or consent of instructor, and graduate standing in business.

**06A:235 Strategic Cost Analysis** 3 s.h.
Introduction to cost accumulation, reporting, cost management systems; managerial and divisional performance evaluation; appropriate use of cost data for short- and long-run decisions; product costing in manufacturing and service industries. Prerequisite: 06N:215 or consent of instructor.

**06A:240 Financial Accounting Standards and Analysis** 3 s.h.
Accounting model, underlying measurement concepts, valuation rules for assets, liabilities, related issues of income determination; emphasis on economic substance of transactions, evaluation and interpretation of financial data. Prerequisite: 06N:215.

**06A:241 Tax Research** 3 s.h.
Deciding what research is needed, evaluating tax materials, developing facility with electronic and printed tax materials. Prerequisite: 06A:141 for undergraduates.

**06A:245 Financial Information and Capital Markets** 3 s.h.
Use of corporate financial statements for investment and lending decisions; emphasis on financial analysis techniques, valuation, business analysis, cash flow projections, credit scoring, related research evidence. Prerequisite: 06A:240 or equivalent.

**06A:246 Corporate Governance** 3 s.h.
How to evaluate and implement mechanisms for good corporate governance; to ensure returns for investors and firms' access to capital markets on reasonable terms; perspectives of investor, firm, regulator.

**06A:286 Seminar in Accounting Research** arr.
Forum on current research in accounting, related disciplines; faculty, student, guest papers, Ph.D. dissertation proposals. Prerequisite: Ph.D. enrollment.

**06A:287 Seminar in Selected Accounting Topics** arr.
Individual study, research paper preparation. Prerequisites: Ph.D. enrollment and consent of instructor.

**06A:290 Thesis: Accounting** arr.
Prerequisites: Ph.D. enrollment and consent of instructor.
The Department of Economics offers degree programs for undergraduates and for graduate students.

**Undergraduate Programs**

The department offers three undergraduate degrees: a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.) in economics awarded by the College of Liberal Arts and Sciences, and a Bachelor of Business Administration (B.B.A.) in economics awarded by the Tippie College of Business.

The B.A. is designed to achieve a balance of economic theory, mathematical tools, and field applications. The B.S. maintains a similar balance but emphasizes development of analytical tools; it prepares students for graduate work in economics or related business and technical fields. The B.B.A. emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management.

Each program provides an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics also provides excellent preparation for the study of law and for graduate study in fields such as business management, public administration, hospital and health administration, urban and regional planning, transportation, journalism, political science, and statistics.

All students majoring in economics choose one of three tracks: business economics, policy economics, or analytical economics. The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The applied field course requirement varies, depending on the student's choice of track.

Each degree program (B.A., B.S., and B.B.A.) has three sets of requirements: mathematics and statistics courses that provide the skills needed for understanding economic theory and data; economic theory courses that provide the tools needed for analyzing economic issues; and field courses that apply economic tools to business, social, or specialized analytical issues. The applied field course requirement varies, depending on the student's choice of track.

**Bachelor of Arts**

The Bachelor of Arts in economics requires a minimum of 120 s.h., including 32 s.h. of work for the major. The program provides a balance of economic theory, mathematical tools, and field applications. It offers good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

The major requires a set of courses in mathematics and statistics (11 s.h.), a set in economic theory (6 s.h.), and a set of applied field courses (15 s.h.). Students must choose one of three tracks: business economics, policy economics, or analytical economics. The applied field courses vary depending on the student's choice of track.

The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative, or who plan to pursue quantitative, or in seeking a decision-making position in the public or private sector.
for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue
technical and/or analytical work in the public or private sector.

All B.A. students in economics must complete the College of Liberal Arts and Sciences General Education Program.

Students may count a maximum of 6 s.h. of transfer or correspondence credit toward the required 21 s.h. in 100-level
economics courses; additional transfer or correspondence credit must be approved by the director of undergraduate
studies. Students should take the economic theory courses (06E:104 Microeconomic Theory or 06E:106 Advanced
Microeconomics, and 06E:105 Macroeconomics) at The University of Iowa.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for
others; see “Prerequisites” below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.A.) requires the following courses.

**Mathematics and Statistics Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06E:071 Statistics for Strategy Problems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:017 Calculus and Matrix Algebra for Business</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22S:008 Statistics for Business</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**Economic Theory Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06E:104 Microeconomic Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>06E:106 Advanced Microeconomics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:105 Macroeconomics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Applied Field Courses**

Five courses are required; course selection is determined by the student's choice of track.

**Business Economics Track**

Five of these:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:002 Managerial Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:111 Personnel Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:117 Money, Banking, and Financial Markets</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:125 Global Economics and Business</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:141 Industry Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:160 Household Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06J:048 Introduction to Management</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Policy Economics Track**

Four of these:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06E:113 Health Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:119 Policy Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:125 Global Economics and Business</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:129 Economic Growth and Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:133 Environmental and Natural Resource Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:135 Regional and Urban Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:145 Transportation Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:164 Economies in Transition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:165 Sports Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:171 Antitrust Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:172 Law and Economics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
One additional economics course numbered 06E:111 - 06E:189

Analytical Economics Track

Four of these:

- 06E:173 International Economics 3 s.h.
- 06E:174 Monetary Economics 3 s.h.
- 06E:175 Labor Economics 3 s.h.
- 06E:176 Public Sector Economics 3 s.h.
- 06E:177 Industrial Organization 3 s.h.
- 06E:183 Natural Resource Economics 3 s.h.
- 06E:187 Mathematical Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

Prerequisites

Prerequisites for most 100-level courses in economics: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics, or consent of instructor

Prerequisites for 06E:104 Microeconomic Theory: 06E:001 Principles of Microeconomics and 22M:017 Calculus and Matrix Algebra for Business, or consent of instructor

Prerequisites for 06E:105 Macroeconomics: 06E:002 Principles of Macroeconomics and 22M:017 Calculus and Matrix Algebra for Business

Prerequisite for 06E:071 Statistics for Strategy Problems: 22S:008 Statistics for Business

Prerequisites for courses numbered 06E:171 and above: 06E:104 Microeconomic Theory or 06E:105 Macroeconomics, or both, depending on the course

Bachelor of Science

The Bachelor of Science in economics requires a minimum of 120 s.h., including 33-35 s.h. of work for the major. The program addresses economic theory, mathematical tools, and field applications, with an emphasis on developing skill using analytic tools. It offers good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

The major requires a set of courses in mathematics and statistics (15-17 s.h.), a set in economic theory (6 s.h.), and a set of applied field courses (12 s.h.). Students must choose one of three tracks: business economics, policy economics, or analytical economics. The applied field courses vary depending on the student's choice of track.

The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue technical and/or analytical work in the public or private sector.

All B.S. students in economics must complete the College of Liberal Arts and Sciences General Education Program.

Students may count a maximum of 6 s.h. of transfer or correspondence credit toward the required 18 s.h. in 100-level economics courses; additional transfer or correspondence credit must be approved by the director of undergraduate studies. Students should take the economic theory courses (06E:104 Microeconomic Theory or 06E:106 Advanced Microeconomics, and 06E:105 Macroeconomics) at The University of Iowa.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see "Prerequisites" below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.S.) requires the following courses.

Mathematics and Statistics Courses

- 06E:184 Introduction to Econometrics 3 s.h.
- 22M:025 Calculus I 4 s.h.
- 22M:026 Calculus II 4 s.h.
22S:120 Probability and Statistics 4 s.h.
or
22S:130-22S:131 Introduction to Mathematical Statistics I-II 6 s.h.

The department recommends that students planning to pursue a graduate degree in economics take 22S:130 Introduction to Mathematical Statistics I and 22S:131 Introduction to Mathematical Statistics II in place of 22S:120 Probability and Statistics, and that they take additional courses in mathematics, including 22M:027 Introduction to Linear Algebra, 22M:028 Calculus III, and 22M:100 Introduction to Ordinary Differential Equations.

**Economic Theory Courses**

06E:104 Microeconomic Theory 3 s.h.

or

06E:106 Advanced Microeconomics 3 s.h.

06E:105 Macroeconomics 3 s.h.

**Applied Field Courses**

Four courses are required; course selection is determined by the student's choice of track.

**Business Economics Track**

Four of these:

06A:002 Managerial Accounting 3 s.h.
06E:111 Personnel Economics 3 s.h.
06E:117 Money, Banking, and Financial Markets 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:141 Industry Analysis 3 s.h.
06E:160 Household Finance 3 s.h.
06J:048 Introduction to Management 3 s.h.

**Policy Economics Track**

Three of these:

06E:113 Health Economics 3 s.h.
06E:119 Policy Analysis 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:133 Environmental and Natural Resource Economics 3 s.h.
06E:135 Regional and Urban Economics 3 s.h.
06E:145 Transportation Economics 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:165 Sports Economics 3 s.h.
06E:171 Antitrust Economics 3 s.h.
06E:172 Law and Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

**Analytical Economics Track**

Three of these:

06E:173 International Economics 3 s.h.
06E:174 Monetary Economics 3 s.h.
06E:175 Labor Economics 3 s.h.
06E:176 Public Sector Economics 3 s.h.
One additional economics course numbered 06E:111 - 06E:189

Prerequisites


Prerequisites for most 100-level courses in economics: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics

Prerequisites for 06E:104 Microeconomic Theory: 06E:001 Principles of Microeconomics and 22M:017 Calculus and Matrix Algebra for Business, or consent of instructor

Prerequisites for 06E:105 Macroeconomics: 06E:002 Principles of Macroeconomics and 22M:017 Calculus and Matrix Algebra for Business

Prerequisites for courses numbered 06E:171 and above: 06E:104 Microeconomic Theory or 06E:105 Macroeconomics, or both, depending on the course

Prerequisite for 06E:184 Introduction to Econometrics: 22S:120 Probability and Statistics or 22S:131 Introduction to Mathematical Statistics II

Bachelor of Business Administration

The Bachelor of Business Administration in economics requires a minimum of 120 s.h., including 18 s.h. of work for the major. The program emphasizes economic foundations of business fields: accounting, finance, marketing, business law, and management. It provides good educational background for a variety of positions in business and government as well as for the study of law and for graduate study.

All students must complete the B.B.A. common requirements: the General Education courses, the prerequisites for admission to the Tippie College of Business, and the business core; see "Common Requirements" under Bachelor of Business Administration in the Tippie College of Business section of the Catalog.

The major requires a set of courses in mathematics and statistics, which students take as part of the B.B.A. common requirements; a set in economic theory (6 s.h.); and a set of applied field courses (12 s.h.). Students majoring in economics choose one of three tracks: business economics, policy economics, or analytical economics. The applied field courses vary depending on the student's choice of track.

The business economics track is designed for students who intend to work in the private sector. The policy economics track is for students interested in earning a degree in law or a graduate degree in a discipline that is not highly quantitative, or in seeking a decision-making position in the public or private sector. The analytical economics track is for students planning to earn a graduate degree in a discipline that is highly quantitative or who plan to pursue technical and/or analytical work in the public or private sector.

Students may request permission to apply a limited amount of transfer or correspondence credit toward requirements for the major, but they should take the economic theory courses (06E:104 Microeconomic Theory or 06E:106 Advanced Microeconomics, and 06E:105 Macroeconomics) at The University of Iowa.

Students should pay close attention to the order in which they take courses, since some courses are prerequisites for others; see "Prerequisites" below. For help in developing a study plan, visit the Department of Economics web site.

The economics major (B.B.A.) requires the following courses.

Mathematics and Statistics Courses

Students take these courses as part of the B.B.A. common requirements.

06E:071 Statistics for Strategy Problems 3 s.h.
22M:017 Calculus and Matrix Algebra for Business 4 s.h.
22S:008 Statistics for Business 4 s.h.

Economic Theory Courses

06E:104 Microeconomic Theory 3 s.h.
or
06E:106 Advanced Microeconomics 3 s.h.

06E:105 Macroeconomics 3 s.h.

Applied Field Courses

Four courses are required; course selection is determined by the student's choice of track.

Business Economics Track

Four of these:
06E:111 Personnel Economics 3 s.h.
06E:117 Money, Banking, and Financial Markets 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:141 Industry Analysis 3 s.h.
06E:160 Household Finance 3 s.h.

Policy Economics Track

Three of these:
06E:113 Health Economics 3 s.h.
06E:119 Policy Analysis 3 s.h.
06E:125 Global Economics and Business 3 s.h.
06E:129 Economic Growth and Development 3 s.h.
06E:133 Environmental and Natural Resource Economics 3 s.h.
06E:135 Regional and Urban Economics 3 s.h.
06E:145 Transportation Economics 3 s.h.
06E:164 Economies in Transition 3 s.h.
06E:165 Sports Economics 3 s.h.
06E:171 Antitrust Economics 3 s.h.
06E:172 Law and Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

Analytical Economics Track

Three of these:
06E:173 International Economics 3 s.h.
06E:174 Monetary Economics 3 s.h.
06E:175 Labor Economics 3 s.h.
06E:176 Public Sector Economics 3 s.h.
06E:177 Industrial Organization 3 s.h.
06E:183 Natural Resource Economics 3 s.h.
06E:187 Mathematical Economics 3 s.h.

One additional economics course numbered 06E:111 - 06E:189

Prerequisites

Prerequisites for most 100-level courses in economics: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics, or consent of instructor

Prerequisites for 06E:104 Microeconomic Theory: 06E:001 Principles of Microeconomics and 22M:017 Calculus and Matrix Algebra for Business, or consent of instructor

Prerequisites for 06E:105 Macroeconomics: 06E:002 Principles of Macroeconomics and 22M:017 Calculus and Matrix Algebra for Business
Prerequisite for 06E:071 Statistics for Strategy Problems: 22S:008 Statistics for Business

Prerequisites for courses numbered 06E:171 and above: 06E:104 Microeconomic Theory or 06E:105 Macroeconomics, or both, depending on the course

Four-Year Graduation Plan

Bachelor of Arts, Bachelor of Science

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

These checkpoints apply to both the Bachelor of Arts and the Bachelor of Science.

Before the third semester begins: at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: at least one-half of the semester hours required for graduation, 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics, and the math component of quantitative courses required for major

Before the seventh semester begins: three-quarters of the semester hours required for graduation, 06E:104 Microeconomic Theory and 06E:105 Macroeconomics, and one 100-level economics course

Before the eighth semester begins: three 100-level economics courses and the statistics component of the quantitative course requirement

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Business Administration

The following checkpoints are designed for students who enter the University as first-year pre-business students. In order to stay on the plan, students must maintain the grade-point average required for guaranteed admission to the Tippie College of Business and must apply for admission to the college by the established deadline.

Students must take 06B:100 Foundations of Business during their first year after admission to the Tippie College of Business.

Before the third semester begins: 06E:001 Principles of Microeconomics or 06E:002 Principles of Macroeconomics, 22M:017 Calculus and Matrix Algebra for Business, and 22S:008 Statistics for Business, or equivalents; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: 06A:001 Introduction to Financial Accounting, 06A:002 Managerial Accounting, and 06E:001 Principles of Microeconomics or 06E:002 Principles of Macroeconomics (whichever has not already been taken), or equivalents; all General Education requirements; and at least half of the semester hours required for graduation

Before the seventh semester begins: business core requirements, approximately half of the course work in the major (varies by major), and three-quarters of the semester hours required for graduation

Before the eighth semester begins: approximately three-quarters of course work in the major

During the eighth semester: all remaining course work in the major, and a sufficient number of semester hours to graduate

Honors

Bachelor of Arts, Bachelor of Science

Students in the College of Liberal Arts and Sciences working toward a B.A. or B.S. in economics are encouraged to take part in the honors program in economics, which provides opportunities for high-achieving students to pursue special research interests. Honors students in economics must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information).

To enter the honors program in economics, students must complete 06E:104 Microeconomic Theory and 06E:105 Macroeconomics before the senior year. Honors students typically register for 06E:194 Honors Seminar in the fall of the senior year. They then define and complete a research project under the guidance of a supervising faculty member, earning up to 6 s.h. in 06E:195 Honors Thesis in Economics. The thesis is presented orally to a committee of three faculty members, typically the undergraduate honors advisor, the student's research supervisor, and a third
faculty member agreed upon by the student and the honors advisor. Interested students should consult the honors advisor by the second semester of their junior year.

**Bachelor of Business Administration**

The Tippie College of Business offers qualified B.B.A. students the opportunity to pursue honors study. For more information, contact the Undergraduate Program Office or see "B.B.A. with Honors" in the Tippie College of Business section of the Catalog.

**Minor**

The minor in economics requires a minimum of 15 s.h. in economics courses, including 12 s.h. taken at The University of Iowa in courses numbered above 06E:100. Students must maintain a g.p.a. of at least 2.00 in the minor.

**Course Work for Nonmajors**

Students in the College of Liberal Arts and Sciences may wish to use economics courses as part of other majors or the General Education Program. The introductory courses 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics are approved for General Education in social sciences; they introduce the field of economics and the specialized topics of upper-division courses. The intermediate theory courses 06E:104 Microeconomic Theory and 06E:105 Macroeconomics provide a deeper foundation in the core theories and methods of the discipline. They serve as preparation for upper-division field courses or as terminal courses in an economics study plan.

Course work in economics can be related to majors in many other fields. For example, political science majors could elect 06E:119 Policy Analysis and 06E:125 Global Economics and Business; global studies majors, 06E:133 Environmental and Natural Resource Economics; pre-law students, 06E:171 Antitrust Economics and 06E:172 Law and Economics; mathematics and engineering majors, 06E:104 Microeconomic Theory and 06E:187 Mathematical Economics; and statistics majors, 06E:184 Introduction to Econometrics.

Some students combine related interests by pursuing double majors in economics and another field, such as computer science, geography, global studies, history, mathematics, political science, sociology, or statistics.

**Undergraduate Economics Forum**

Students are invited to join the undergraduate Economics Forum. The group sponsors programs to help students plan for careers or graduate study and holds social events, special lectures, and round-table discussions. It provides opportunities for students to meet other economics majors and department faculty members.

**Graduate Programs**

The department offers a Master of Arts and a Doctor of Philosophy in economics. It also offers a joint Doctor of Philosophy/Juris Doctor with the College of Law; see "Joint Ph.D./J.D." later in this section.

**Master of Arts**

The Master of Arts is offered only to students working toward a Ph.D. in economics.

**Doctor of Philosophy**

The Doctor of Philosophy in economics requires a minimum of 72 s.h. of graduate credit. The program provides rigorous training in economic theory, econometrics, and applied economics. It has six components: a coordinated sequence of core courses, a qualifying examination, a research paper, a set of major field courses, a dissertation proposal and comprehensive examination, and a dissertation.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Application deadline for admission and financial support is January 15 for fall semester entry.

**CORE SEQUENCE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06E:200 Economic Analysis I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:203 Microeconomics I</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
06E:204 Macroeconomics I 3 s.h.

Second Semester

06E:201 Economic Analysis II 3 s.h.
06E:205 Microeconomics II 3 s.h.
06E:206 Macroeconomics II 3 s.h.

Third Semester

06E:221 Econometrics 3 s.h.

Fourth Semester

06E:222 Applied Econometrics 3 s.h.

QUALIFYING EXAMINATION
The qualifying examination is normally taken the summer after the first year.

RESEARCH PAPER
The research paper is normally completed the summer after the second year.

MAJOR FIELD COURSES
Each student chooses a major study area in addition to the core courses. The requirement for the major area is a minimum of 24 s.h. of intensive study in a field and in courses that enable students to understand the relationship between their specialty and related fields.

DISSERTATION PROPOSAL AND COMPREHENSIVE EXAMINATION
Students must defend a dissertation proposal in a comprehensive examination within one year of completing the research paper requirement.

DISSERTATION
Submission of the completed dissertation and an oral defense of the dissertation research completes the Ph.D. program.

Joint Ph.D./J.D.
The Department of Economics and the College of Law offer a joint Ph.D./J.D. program; see Juris Doctor in the College of Law section of the Catalog. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Special Seminar
Each year the department offers a seminar program that brings eminent economists from other universities and from government agencies to The University of Iowa campus. Presentations by Department of Economics faculty members and students also are featured.

Economics Courses
Primarily for Undergraduates

Note: 06E:001 Principles of Microeconomics and 06E:002 Principles of Macroeconomics may be taken in either order or simultaneously. They are approved for General Education in social sciences for B.A. and B.S. students.
06E:001 Principles of Microeconomics 4 s.h.
Organization, workings of modern economic systems; role of markets, prices, competition in efficient allocation of resources and promotion of economic welfare; alternative systems; international trade. B.B.A. students cannot use this course for GE: social sciences. GE: Social Sciences.

06E:002 Principles of Macroeconomics 4 s.h.
National income and output, employment and inflation; money, credit; government finance; monetary, fiscal policy; economic growth, development; international finance. B.B.A. students cannot use this course for GE: social sciences. GE: Social Sciences.

06E:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

06E:071 Statistics for Strategy Problems 3 s.h.
Continuation of 22S:008; working knowledge of statistical techniques, scientific data-based approach to problem formulation and solution, statistical techniques in the context of real data analysis, assessment of defects in statistical analyses, using data for making business decisions, choosing appropriate statistical procedures, developing skill in communicating statistical results to audiences without knowledge of statistics. Prerequisites: 22M:017 and 22S:008.

06E:104 Microeconomic Theory 3 s.h.
Economic theory of the behavior of consumers, producers, and other economic agents; role of markets in coordinating economic activity, conditions that markets require for efficient allocation of resources; market imperfections; strategic behavior of economic actors. Prerequisites: 06E:001 and 22M:017, or consent of instructor.

06E:105 Macroeconomics 3 s.h.
Measurement of macroeconomic indicators; economic growth and business cycles; use of macroeconomic models to study the role of government fiscal and monetary policies. Prerequisites: 06E:002 and 22M:017; or consent of instructor.

06E:106 Advanced Microeconomics 3 s.h.
Mathematical treatment of the economic theory of the behavior of consumers, producers, and other economic agents; the role of markets in coordinating economic activity and the conditions required by those markets for an efficient allocation of resources; market imperfections; and the strategic behavior of economic actors. Prerequisites: 06E:001, and 22M:017 or equivalent (22M:025 preferred).

06E:111 Personnel Economics 3 s.h.
Microeconomic analysis of labor markets, related institutions; labor supply decisions made by workers, labor demand decisions made by firms, market equilibrium; economic analysis of unions; returns to education; family decisions. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:113 Health Economics 3 s.h.
Structure of America's health care industry, economic analysis applied to its problems of production, pricing, distribution; cost-effectiveness, financing of medical costs, role of government. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:117 Money, Banking, and Financial Markets 3 s.h.
Role of money, institutions in determination of income, employment, prices in domestic and world economy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:119 Policy Analysis 3 s.h.
Economic functions of government in modern economies; economic decision making; budgetary processes; effects of government expenditures, taxation on allocation of resources, distribution of income, economic growth, stability. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:125 Global Economics and Business 3 s.h.
Modern theories of international trade and investment; role of tariffs and other restrictions of international trade; foreign exchange markets, international monetary arrangements, international economic policy. Prerequisites: 06E:001 and 06E:002, or consent of instructor.
06E:129 Economic Growth and Development 3 s.h.
Determinants of rising living standards; accumulation of physical and human capital; predictions of economic growth models compared to observed changes in living standards. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:133 Environmental and Natural Resource Economics 3 s.h.
Environmental and resource use problems; efficient mechanisms and other policies for environmental protection, management of common property resources. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:135 Regional and Urban Economics 3 s.h.
Theory of location and regional development; central place theory; why cities exist and trade with one another; models of land use patterns, rents; empirical tests of models; policy applications. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:141 Industry Analysis 3 s.h.
Structural evolution; imperfect competition, resource allocation; development of public policy on monopoly; selected industries. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:145 Transportation Economics 3 s.h.
Overview of transportation markets—intercity, rural, urban; transportation modes—rail, highway, air, water, pipeline, transit; issues in finance, policy, planning, management, physical distribution, and environmental, economic, and safety regulation. Prerequisites: 06E:001 and 06E:002, or consent of instructor. Same as 044:133, 102:133.

06E:158 American Economic History 3 s.h.
Emphasis on role of population and technology. Prerequisites: 06E:001 and 06E:002 or consent of instructor for economics majors; 06E:001 and 16A:061 for nonmajors. Same as 16A:144.

06E:160 Household Finance 3 s.h.
Micro- and macroeconomic theory applied to economic decisions of families, households; practical and theoretical issues in income generation, spending and saving decisions, risk management and asset allocation, investments, and intergenerational wealth transfers. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:164 Economies in Transition 3 s.h.
Emerging markets and newly industrialized nations in Asia, Latin America, the former Soviet Union; developments in these regions over past decades—financial crises, industrialization, economic reform, privatization, impact of globalization, development of human capital, income distribution; role of institutions in the transition from poor to rich nation. Prerequisites: 06E:001 and 06E:002, or consent of instructor.

06E:165 Sports Economics 3 s.h.
Theory and literature of economic issues in professional sports; issues such as relative advantages of large-and small-market teams, city subsidies for baseball and football stadiums, star players' true value to their teams; ideas from introductory economics (such as demand and cost curves) combined with additional economic theory, statistical evidence, and information about particular sports. Prerequisites: 06E:001 and 06E:002.

06E:169 Introductory Topics in Economics arr.
Topics vary.

06E:171 Antitrust Economics 3 s.h.
Topics in federal antitrust policy; merger policy, monopolization, predatory pricing, collusion, vertical restrictions, resale price maintenance, enforcement; case law, economics literature. Prerequisite: 06E:104 or 091:208 or consent of instructor.

06E:172 Law and Economics 3 s.h.
Law examined through analytic tools of microeconomics; impact of legal rules on resource allocation, risk bearing, distribution of economic well-being. Prerequisite: 06E:001 or consent of instructor.

06E:173 International Economics 3 s.h.
Neoclassical model of international trade, imperfect competition and international trade and investment, role of trade barriers; regional trade agreements and the World Trade Organization. Prerequisites: 06E:104 and 06E:105, or graduate standing.
06E:174 Monetary Economics  
Demand for and supply of money; money’s role in economy; empirical studies of money’s impact; problems with monetary control. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:175 Labor Economics  
Labor supply and demand; investments in human capital, compensating wage differentials, discrimination, long-term contracts, occupational choice, family decisions, unions, immigration. Prerequisite: 06E:104.

06E:176 Public Sector Economics  
Economic functions of government; budgetary processes; effects of government expenditures, taxation on resource allocation, income distribution, economic growth and stability. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:177 Industrial Organization  
Market structure; effects of business practices, informational problems on market structure; appraisal of antitrust policies, government regulation of business. Prerequisite: 06E:104.

06E:179 History of Economic Thought  
Evolution of economics as a social science; ideas of Smith, Ricardo, Malthus, Marx, Marshall, Keynes, and their major critics. Prerequisites: 06E:104 and 06E:105.

06E:183 Natural Resource Economics  
Economics of natural resources; interaction between economic theory, empirical evidence, and public policy; land, water, fish, trees, minerals; externalities. Prerequisite: 06E:104 or consent of instructor.

06E:184 Introduction to Econometrics  
Single equation linear statistical models, estimation and hypothesis testing; serial correlation, heteroscedasticity, generalized least squares estimation; specification analysis; errors in variables; emphasis on interpretation, application of econometric models, methods, use of computers. Prerequisite: 22S:120 or equivalent.

06E:187 Mathematical Economics  
Mathematical structure of economic principles, problems, systems; may include constrained optimization, choice under uncertainty, general equilibrium and welfare economics, dynamical systems and control theory, game theory. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:189 Advanced Topics in Economics  
Topics vary. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

06E:190 Federal Reserve Challenge  
Experience doing what Federal Reserve economists do every day: study the real U.S. economy, make forecasts and policy recommendations, defend their views to academic and professional economists; development of analytical skills, teamwork, how to build presentations. Prerequisites: 06E:104 and 06E:105, or consent of instructor.

For Advanced Undergraduates

06E:194 Honors Seminar  
Research topics and methods in business. Prerequisites: business honors standing and consent of business honors director. Same as 06B:194.

06E:195 Honors Thesis in Economics  
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06E:196 Readings and Independent Study in Economics  
arr.

06E:199 Academic Internship  
arr.
Participation in approved internship program (e.g., Washington Center Internships). Prerequisite: consent of instructor.

**Primarily for Graduate Students**

With consent of the department chair, qualified undergraduates may enroll in courses listed for graduate students.

**06E:200 Economic Analysis I**
Basic metric topology, convex analysis, function spaces, measure theory and integration. 3 s.h.

**06E:201 Economic Analysis II**
Behavior under uncertainty, macroeconomic models; dynamic programming, asset pricing, saving, consumption. 3 s.h.

**06E:203 Microeconomics I**
Consumer choice theory, producer theory, choice under uncertainty, basic game theory. Offered fall semesters. Prerequisite: consent of instructor. 3 s.h.

**06E:204 Macroeconomics I**
Economic growth, business cycles, money and inflation. Offered fall semesters. Prerequisite: 06E:201 or consent of instructor. 3 s.h.

**06E:205 Microeconomics II**
General equilibrium and welfare analysis, adverse selection, the principal-agent problem, social choice, mechanism design. Offered spring semesters. Prerequisite: 06E:203 or consent of instructor. 3 s.h.

**06E:206 Macroeconomics II**
Dynamic macroeconomic models; stochastic macroeconomics; time consistency equilibrium business cycle theory. Offered spring semesters. Prerequisite: 06E:204 or consent of instructor. 3 s.h.

**06E:211 Mathematical Economics I**
Convex analysis in economic theory; ordinal and cardinal preference relations; quasiconcave, concave numerical representations; separation principle for convex sets--linear programming, concave programming; Brouwer fixed point theorem; existence of competitive equilibrium. Prerequisite: 06E:205 or consent of instructor. 3 s.h.

**06E:221 Econometrics**
Statistical inference in single and multiple equation stochastic models, models with nonindependent or nonidentically distributed error structure, dynamic models; OLS, GLS, IV, ML estimation; asymptotic distribution theory; exact, asymptotic hypothesis tests. Prerequisite: 22S:154 or equivalent. 3 s.h.

**06E:222 Applied Econometrics**
Empirical problems; multiple linear regression, nonlinear regression, maximum likelihood, hazard functions, univariate and multivariate time series, flexible functional forms. Prerequisite: 06E:221. 3 s.h.

**06E:223 Econometric Theory I**
Inference from data and theory in economic models; emphasis on decision making and simulation methods. Prerequisite: 06E:222 or consent of instructor. 3 s.h.

**06E:234 International Business-M.B.A.**
Problems in international business; how to export, how to deal with import competition, international joint ventures; country studies. Prerequisite: consent of instructor. 3 s.h.

**06E:235 International Trade Theory**
The theory of international trade, including basic models of international trade; capital and labor mobility and trade; protection of international trade; the political economy of international trade; empirical applications of international trade. Prerequisite: consent of instructor. 3 s.h.

**06E:241 Macroeconomics III**
Current research in macroeconomics; development of research topics with emphasis on theoretical and empirical analysis. Prerequisites: 06E:205 and 06E:221. 3 s.h.
06E:245 Monetary Theory 3 s.h.
Research at the frontier of monetary theory and policy; overlapping generations models, search models of money, representative agent monetary models, intermediation and banking theory, and financial contracts.

06E:250 Labor Economics 3 s.h.
Problems and models, including intertemporal models of labor markets; uncertainty and labor market activity; retirement decisions, economic theories of fertility; economics of discrimination; job search models; economic models of unions; bargaining and strikes, public sector labor markets; determinants of income distribution; emphasis on empirical verification of theory. Prerequisites: 06E:205, and 06E:184 or 06E:221.

06E:271 Industrial Organization 3 s.h.
The firm, monopolistic competition, oligopoly and workable competition; industrial organization, nature of equilibrium under uncertainty. Prerequisites: 06E:205 and 06E:211.

06E:299 Contemporary Topics in Economics 3 s.h.
Topics not offered in other courses. Repeatable. Prerequisite: consent of instructor.

06E:300 Readings in Economics  arr.
Prerequisite: consent of instructor.

06E:301 Thesis in Economics  arr.
Prerequisite: consent of instructor.

Advanced Graduate Seminars

06E:310 Seminar in Economic Theory  arr.
Prerequisite: consent of instructor.

06E:311 Seminar in Economic Theory II  arr.

06E:321 Workshop in Microeconomics 1 s.h.
Prerequisite: consent of instructor.

06E:322 Workshop in Macro and Monetary Economics 1 s.h.
Prerequisite: consent of instructor.
Entrepreneurship

**Director:** David K. Hensley
**Undergraduate nondegree programs:** Certificate in Entrepreneurial Management, Technological Entrepreneurship
**Web site:** http://www.iowajpec.org/

The Tippie College of Business and the John Pappajohn Entrepreneurial Center offer the undergraduate Certificate in Entrepreneurial Management. The Colleges of Engineering and Liberal Arts and Sciences and the University of Iowa health sciences colleges also collaborate in the program.

The certificate may be completed on campus, or it may be completed online or by distance education in conjunction with the Bachelor of Applied Studies (University College) or the Bachelor of Liberal Studies (College of Liberal Arts and Sciences). It is open to all University of Iowa undergraduates and to individuals who hold a bachelor's degree and are not currently enrolled in a graduate or professional program.

The certificate program was named the 2004 National Model Undergraduate Entrepreneurship Program by the United States Association for Small Business and Entrepreneurship.

The Tippie College of Business and the College of Engineering offer an entrepreneurship certificate program; see "Certificate in Technological Entrepreneurship" below.

The John Pappajohn Entrepreneurial Center and the Division of Performing Arts also offer an entrepreneurship certificate program; see Performing Arts Entrepreneurship (College of Liberal Arts and Sciences) in the Catalog.

**Certificate in Entrepreneurial Management**

The Certificate in Entrepreneurial Management requires a minimum of 18 s.h. in course work related to entrepreneurship. The program is designed to help students acquire the entrepreneurial mindset that will enable them to launch new ventures or manage growing companies. It focuses on qualities and skills essential for entrepreneurs and successful business leaders: innovation and creativity; recognizing, evaluating, and seizing opportunities; professional communication skills; and strategic business planning.

Entrepreneurship students learn from a select team of faculty members and business leaders distinguished by their ability to teach, model, and inspire the entrepreneurial process. They gain understanding of the entrepreneurial approach to acquiring and managing resources; develop team-building skills critical to both small and large companies, network with successful entrepreneurs and business leaders, and participate in experiential learning opportunities.

Students may begin working toward the Certificate in Entrepreneurial Management in their sophomore year. They must declare their intention to pursue the certificate; see "Admission" later in this section. The certificate is noted on students' permanent records when their undergraduate degrees are added to their transcripts.

Students may count a maximum of 6 s.h. of transfer credit toward the certificate, with approval of the entrepreneurship program director. Credit from entrepreneurship courses (prefix 06T) is counted as semester hours earned in business on the degree evaluation. Students must satisfy all prerequisites before enrolling in a required course.

Certificate requirements are as follows.

- **06T:120 Entrepreneurship and Innovation** 3 s.h.
- **06T:125 New Ventures in the Arts** 3 s.h.
- **06T:133 Entrepreneurial Finance** 3 s.h.
- **06T:134 Entrepreneurial Marketing** 3 s.h.
- **06T:150 Managing the Growth Business** 3 s.h.

Students earn an additional 6 s.h. in elective courses chosen from the following list. Students who wish to use a course not on the list must consult with the Pappajohn Entrepreneurial Center director.

- **06J:125 Entrepreneurial Strategy (for B.B.A. in management)** 3 s.h.
- **06J:156 Dynamics of Negotiations** 3 s.h.
- **06T:101 Directed Readings in Entrepreneurship** arr.
- **06T:144 Nonprofit Organizational Effectiveness I** 3 s.h.
- **06T:145 Legal Aspects of Entrepreneurship** 3 s.h.
Admission

University of Iowa undergraduate students and individuals who hold an undergraduate degree and are not currently enrolled in a graduate or professional program are eligible to earn the certificate. Undergraduate students must declare their intention to pursue the certificate. Business students should contact the Tippie College of Business Undergraduate Program Office. Liberal arts and sciences students should contact CLAS Academic Programs & Services.

Certificate in Technological Entrepreneurship

The Tippie College of Business and the College of Engineering offer a program leading to the Certificate in Technological Entrepreneurship. The program focuses on the entrepreneurial process as it relates to technology. It is designed for students who intend to run their own businesses as well as for others interested in gaining a better understanding of the entrepreneurial process. For more information, see College of Engineering in the Catalog. For application information, contact the College of Engineering Office of the Dean.

Entrepreneurship Courses

06T:029 First-Year Seminar
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

06T:050 Foundations in Entrepreneurship
Core business concepts faced by entrepreneurs in small business accounting and finance, marketing, and business planning.

06T:101 Directed Readings in Entrepreneurship
Independent study; topics and assignments approved by instructor. Prerequisite: consent of instructor.

06T:113 Basics of Small Business Accounting
Duplicates 06A:001; financial statements of small companies; basics of balance sheets, income statements, cash flow statements; development of assumptions for projections; simple comparative analysis. Prerequisite: closed to business and pre-business students.

06T:116 Basics of Small Business Marketing
Duplicates 06M:100; basic marketing concepts for nonbusiness majors; traditional and guerrilla marketing strategies; focus on marketing information required in a business plan. Closed to business and pre-business students.

06T:120 Entrepreneurship and Innovation
The entrepreneurial process from conception to birth of a new venture; attributes of successful entrepreneurs, innovation and creativity, recognition of opportunity, venture screening, identification of resources, feasibility analysis. Duplicates 06T:125. Corequisites: 06T:050, or 06A:001 and 06M:100, or equivalents.

06T:125 New Ventures in the Arts
Arts administration principles and trends as applied to creation of an arts-related enterprise; case studies; students create business plan for a new arts organization. Duplicates 06J:125 and 06T:120. Prerequisites: 06A:001 or 06T:050 or an approved college-level accounting course, and 06M:100; or graduate standing and consent of instructor. Corequisite: 06T:113. Same as 049:111, 145:111, 188:111.

06T:133 Entrepreneurial Finance

06T:146 Strategic Management of Technology and Innovation
06T:147 Social Entrepreneurship
06T:148 E-Commerce Strategies for Entrepreneurs
06T:155 Arts Leadership Seminar
06T:190 Seminar in Entrepreneurship
06T:191 Practicum in Entrepreneurship
06T:192 Entrepreneurship: Business Consulting
06T:194 Entrepreneurship: Advanced Business Planning
06T:199 Academic Internship
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
3 s.h.
Understanding the process of capital acquisition and cash flow management; techniques, projections, and measurements used in valuing and funding new and growing ventures; sources and strategies for raising capital. Prerequisite: 06T:120.

**06T:134 Entrepreneurial Marketing**  
3 s.h.  
Practical marketing concepts for determining market potential of a business; developing a marketing plan, identifying markets, creating products, designing promotions and sales programs, assessing ongoing customer service needs. Prerequisite: 06T:120. Corequisite: 06M:100 or 06T:116.

**06T:144 Nonprofit Organizational Effectiveness I**  
3 s.h.  
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 032:127, 042:157, 06J:147, 096:168.

**06T:145 Legal Aspects of Entrepreneurship**  
3 s.h.  
Areas of law significant to new and emerging businesses; legal system pitfalls, constraints, opportunities; overview. Prerequisites: 06T:120, and 06T:133 or 06T:145.

**06T:146 Strategic Management of Technology and Innovation**  
3 s.h.  
Role of technology in creation, growth, and survival of industries; process, risks, and rewards of technological innovation, commercialization; successful approaches to developing technological strategy and products. Prerequisites: 06T:120, and 06T:133 or 06T:145.

**06T:147 Social Entrepreneurship**  
3 s.h.  
Introduction to the growing field of social entrepreneurship, the creation of ventures with dual missions of social benefit and return on investment; issues related to evaluating market opportunities, acquiring and managing scarce resources, and maximizing social and economic value. Prerequisites: 06T:120 and 06T:133.

**06T:148 E-Commerce Strategies for Entrepreneurs**  
3 s.h.  
E-commerce opportunities and Internet business strategies for entrepreneurial ventures; business-to-consumer and business-to-business scenarios; hands-on experience building and managing a web site. Prerequisites: 06T:120 and 06T:133.

**06T:150 Managing the Growth Business**  
3 s.h.  
Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth; case studies, particularly in technology sector. Prerequisites: 06T:120, 06T:133, and 06T:145.

**06T:155 Arts Leadership Seminar**  
3 s.h.  

**06T:190 Seminar in Entrepreneurship**  
2-3 s.h.  
Topics such as franchising, business acquisition, real estate development, technology transfer. Prerequisites: 06T:120, and 06T:133 or 06T:134; or consent of instructor.

**06T:191 Practicum in Entrepreneurship**  
3 s.h.  
Simulation of team-based entrepreneurial new venture; seminars with successful entrepreneurs, business, and community leaders; opportunities for networking and mentoring to foster development of entrepreneurial management skills. Prerequisites: 06T:120 and 06T:133, or consent of instructor.

**06T:192 Entrepreneurship: Business Consulting**  
3 s.h.  
Experience on teams providing consulting services to start-up and early-stage companies; the consulting process--proposal development, data collection and analysis, final report preparation and presentation; projects--marketing studies, financial projections, strategic planning. Prerequisites: 06T:120, 06T:133, and 06T:134; or consent of instructor.

**06T:194 Entrepreneurship: Advanced Business Planning**  
3 s.h.
Mentoring for individuals in final stages of preparing to launch their own business. Prerequisites: 06T:120, 06T:133, and 06T:134; or consent of instructor.

06T:199 Academic Internship
Professional internship experience with academic credit (e.g., paper, course work). Repeatable. Prerequisite: consent of department chair.

06T:201 Introduction to Entrepreneurial Management
The entrepreneurial process as it applies to new ventures and existing organizations; entrepreneurship and corporate entrepreneurship, attributes of successful entrepreneurial leaders, innovation and creativity, feasibility analysis.

06T:202 Evaluating Entrepreneurial Opportunities
Strategies to identify, assess, and capitalize on sustainable commercial opportunities; opportunity recognition, environmental analysis, intellectual property, strategic business planning.

06T:203 Basics of Entrepreneurial Marketing
Core marketing concepts facing entrepreneurial organizations; types of markets, product management, distribution, pricing, market research and analysis, market planning.

06T:204 Basics of Entrepreneurial Finance
Core financial concepts facing entrepreneurial organizations; accounting systems, financial statements, financial statement analysis, financial projections, sources of financing.

06T:210 Developing Professional Service Business
Use of professional skills and functional knowledge in creating a specialized service business. Same as 053:210.

06T:220 Entrepreneurship and Innovation
The entrepreneurial process from conception to birth of a new venture; attributes of successful entrepreneurs, innovation and creativity, opportunity recognition, venture screening, identification of resources, feasibility analysis.

06T:233 Finance for Entrepreneurs
Understanding the process of capital acquisition and cash flow management; techniques, projections, and measurements used in valuing and funding new and growing ventures; sources and strategies for raising capital. Same as 06F:219.

06T:246 Strategic Management of Technology and Innovation
Role of technology in creation, growth, and survival of industries; process, risks, and rewards of technological innovation, commercialization; successful approaches to developing technological strategy and products.

06T:250 Managing the Growth Business
Issues faced by new, rapidly growing businesses; adapting organizational structure as business expands, building a management team, hiring new employees, managing strategic growth of a business; case studies, particularly in technology sector.

06T:290 Seminar in Entrepreneurship
Topics such as franchising, business acquisition, real estate development, e-commerce, technology transfer. Repeatable.

06T:292 Entrepreneurship: Business Consulting
Experience on teams providing consulting services to start-up and early-stage companies; the consulting process—proposal development, data collection and analysis, final report preparation and presentation; projects—marketing studies, financial projections, strategic planning.

06T:294 Entrepreneurship: Advanced Business Planning
Mentoring for individuals in final stages of preparing to launch their own business.
Finance

Chair: Paul A. Weller

Professors: David S. Bates (W. A. Krause Research Fellow), Matthew T. Billett (Henry B. Tippie Research Fellow), Erik Lie (Henry B. Tippie Research Professor of Finance), Jarjisu Sa-Aadu (Chester A. Phillips Professor of Business Finance and Real Estate), Anand M. Vijh (Marvin and Rose Lee Pomerantz Chair in Finance), Paul A. Weller (John F. Murray Professor of Finance)

Professors emeriti: Charles E. Marberry, Robert M. Soldofsky, Richard A. Stevenson

Clinical professor: John H. Spitzer

Associate professors: Jon A. Garfinkel (Waugh Research Fellow), Thomas A. Rietz (Hershberger Research Fellow), Gerry L. Suchanek, Ashish Tiwari (Matthew Bucksbaum Research Fellow)

Associate professor emeritus: G. Carl Schweser

Visiting associate professor: John G. Gallo

Assistant professors: Philip R. Davies, Redouane Elkamhi, Satafud Hore, James T. Leverty (TRISTAR Risk Management Fellow), Yiming Qian, Tong Yao, Yu Yuan

Lecturers: Heidi Dybevik, Larry Hershberger, Todd I. Houge, Brian Richman

Undergraduate nondegree program: Certificate in Risk Management and Insurance

Graduate degrees: M.B.A.; Ph.D. in Business Administration

Web site: http://tippie.uiowa.edu/finance

The Department of Finance is committed to delivering undergraduate and graduate degree programs that integrate the technology and analytics of today's global financial community. The department's goal is to provide students with the technical skills they will need to enhance their managerial effectiveness, whether they work in large corporations, small organizations, or private consulting.

Undergraduate Program

The department offers a Bachelor of Business Administration in finance and the undergraduate Certificate in Risk Management and Insurance.

Bachelor of Business Administration

The Bachelor of Business Administration in finance requires a minimum of 120 s.h., including 20 s.h. of work for the major. The program provides a balance of theory, applications, and financial information technology that facilitates students' transition from classroom to workplace. Through fundamental finance principles and state-of-the-art financial market information technologies, students develop analytical abilities to interpret financial market data, implement the latest trading and investment strategies, and make effective managerial decisions in national as well as international settings.

The program stresses learning by doing, partnership with industry, and internships, with the goal of enhancing students' career development. Students receive a balanced education consistent with the globalization of business and the explosion in financial markets and information technology.

Careers for students majoring in finance include corporate treasury operations, cash management, mergers and acquisitions, investment banking, sales and security trading, security analysis, commercial banking and financial services, credit analysis, mortgage lending, financial planning, consulting, public administration, and venture capital.

Requirements for the finance major are as follows. For B.B.A. common requirements, see Bachelor of Business Administration (Undergraduate Program) in the Tippie College of Business section of the Catalog.

06A:120 Financial Accounting and Reporting 3 s.h.
06F:110 Financial Information Technology 2 s.h.
06F:111 Investment Management 3 s.h.
06F:117 Corporate Finance 3 s.h.

Note: students may count only two of these courses toward the finance major: 06F:102 Principles of Risk Management and Insurance, 06F:103 Property and Liability Insurance, 06F:104 Corporate and Financial Risk Management, 06F:105 Life and Health Insurance, 06F:106 Employee Benefit Plans.

Three of these:

06A:149 Financial Statement Analysis 3 s.h.
06F:102 Principles of Risk Management and Insurance 3 s.h.
06F:103 Property and Liability Insurance 3 s.h.
06F:104 Corporate and Financial Risk Management 3 s.h.
06F:105 Life and Health Insurance 3 s.h.
06F:106 Employee Benefit Plans 3 s.h.
06F:108 Topics in Finance I (does not count toward major if taken S/F) 3 s.h.
06F:109 Topics in Finance II 3 s.h.
06F:112 Applied Equity Valuation 3 s.h.
Certificate in Risk Management and Insurance

The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the Certificate in Risk Management and Insurance. The certificate program provides undergraduate students with a foundation for careers in corporate risk management, risk management consulting, employee benefits management, insurance brokerage, and underwriting. Noncertificate students University-wide also find risk management and insurance (RMI) courses valuable. See Risk Management and Insurance in the Catalog.

Graduate Program

The Department of Finance offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Finance web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

Finance Courses

Primarily for Upper-Division Undergraduates

06F:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

06F:100 Introductory Financial Management 3 s.h.
Financial management goals and decision making; valuation of bonds and stocks, risk and return analysis, portfolio diversification, market efficiency, asset pricing, cost of capital, agency theory, capital budgeting, financial planning. Prerequisites: 06A:002, 06E:001, 06E:002, and junior standing.

06F:101 Directed Readings in Finance arr.
Individually guided readings in selected topics. Prerequisite: consent of instructor.

06F:102 Principles of Risk Management and Insurance 3 s.h.
Introduction to risk and insurance; risk identification and evaluation, demand for insurance, effects of limited liability, theory of moral hazard and adverse selection; business and personal risk; insurance as a risk management tool. Corequisite: 06F:100 or consent of instructor.

06F:103 Property and Liability Insurance 3 s.h.
Fundamentals of commercial property and liability insurance; commercial property and liability contracts, functions of property and liability insurers; regulation and financial analysis of property and liability insurers; marketing, underwriting, rate making, claim settlements. Prerequisite: 06F:102.

06F:104 Corporate and Financial Risk Management 3 s.h.
Analysis and treatment of pure and financial risks faced by business organizations; development and implementation of the risk management process, application of varied risk management techniques to identified exposures; how businesses manage risk and how insurance is used to manage the cost of risk; case studies. Prerequisite: 06F:102. Corequisite: 06F:110 or consent of instructor.
06F:105 Life and Health Insurance
Types of life insurance and annuity contracts and their uses; regulation of life and health insurers; development of financial plans using life insurance products; Social Security, group, and individual health insurance products, including major medical, disability income, long-term care policies; marketplace analysis; contractual provisions, determination of human life values, mathematics of life contingencies and pricing. Prerequisite: 06F:102.

06F:106 Employee Benefit Plans
Management of employee benefit plans (e.g., group life and health insurance, retirement programs); design, administration, and financing of employee benefits; federal administration of employee benefit plans; funding requirements, financial alternatives; funding and vesting of retirement annuities; design and management of health care plans, including "cafeteria" approach and nonqualified deferred compensation arrangements; economic effects and financing employee benefits and retirement plans in private and public sectors. Prerequisite: 06F:102.

06F:108 Topics in Finance I
Contemporary issues in finance. Prerequisite: 06F:100.

06F:109 Topics in Finance II
Contemporary issues in finance. Prerequisite: 06F:100.

06F:110 Financial Information Technology
Applications of commonly used financial software and data systems reviewed by student teams. Corequisite: 06F:100.

06F:111 Investment Management
Investment in marketable securities in domestic and international markets; financial markets, securities trading, evaluation of risk/return trade-off, formulation and implementation of investment strategies, efficient portfolio formation. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.

06F:112 Applied Equity Valuation
Equity valuation and portfolio management techniques by investment professionals; economic forecasting, industry analysis, financial statement analysis, spreadsheet modeling, cost of capital estimation, equity valuation and portfolio construction; students manage The University of Iowa's Krause Fund (an endowed equity portfolio that blends academic rigor with real-world portfolio management experience). Prerequisites: 06F:100 and UI cumulative g.p.a. of at least 2.80.

06F:113 Fixed Income Securities
Theories of fixed income securities, term structure of interest rates; asset pricing models, valuation of fixed income securities and contingent claims, fixed income portfolio management, immunization strategies, yield curve analysis. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.

06F:114 Commercial Banking
Management of commercial banks and financial service firms; asset and liability management, credit policy, capital risk, liquidity planning, use of swaps and derivatives to hedge interest rate risk, global banking, investment strategies. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.

06F:115 Investment Banking
How investment bankers interact with clients in access to growth capital, sales, trading, and investment banking; role of investment bankers through varied perspectives, including those of the client (e.g., corporate CFO, treasurer, corporate development officer) and service provider (e.g., investment banking professional). Prerequisites: 06F:100, and 06F:117 or consent of instructor.

06F:116 Futures and Options
Use of options, futures, and other derivative securities in financial management; understanding types of derivative securities, markets, trading technology; applications of risk management and speculation; pricing relations with underlying securities. Prerequisite: 06F:111.

06F:117 Corporate Finance
Advanced managerial decision making; corporate financial policy, dividend policy, agency theory, corporate restructing, capital structure strategies, mergers and acquisitions, option pricing fundamentals, convertible debt, callable debt, warrants. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>06F:118</td>
<td>Advanced Corporate Finance</td>
<td>3 s.h.</td>
<td>Issues relevant to financial management, payout policy, financial distress and bankruptcy, restructuring, market for corporate control; recent research and cases from the corporate arena; other topics (e.g., bankruptcy) to broaden application and understanding of finance theory. Prerequisite: 06F:117.</td>
<td></td>
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<tr>
<td>06F:119</td>
<td>Wealth Management</td>
<td>3 s.h.</td>
<td>Financial services for client wealth management; how to make personal investment decisions and build diversified, comprehensive investment portfolios; investment theory; common behavioral biases that lead to investment pitfalls, mistakes; wealth management objectives, portfolio risk and reward, asset allocation, portfolio diversification, tax shield structures, retirement plans, wealth protection, risk management, behavioral finance, psychology of investing. Prerequisite: 06F:100.</td>
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<tr>
<td>06F:126</td>
<td>Real Estate Process</td>
<td>3 s.h.</td>
<td>Fundamentals of real estate finance and investments; economic base analysis, asset analysis, market analysis, mortgage markets, underwriting, alternative mortgages, mortgage-backed securities, real estate securitization, land development, valuation principles, investment analysis, tax consideration, portfolio management. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.</td>
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<tr>
<td>06F:130</td>
<td>International Finance</td>
<td>3 s.h.</td>
<td>International monetary systems, exchange rate determination, use of currency derivative in hedging and risk management, currency swaps, foreign direct investment, international corporate finance, international capital budgeting, international portfolio investment, Third World debt, privatization, joint ventures. Prerequisite: 06F:100. Corequisite: 06F:110 or consent of instructor.</td>
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<tr>
<td>06F:190</td>
<td>Hawkinson Scholar Seminar</td>
<td>1 s.h.</td>
<td>Advanced skill and understanding required for pursuit of investment banking, management consulting careers; specialized résumé and interview training, industry presentations, relevant case assignments. Repeatable. Prerequisite: consent of Hawkinson Institute of Business Finance director.</td>
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<tr>
<td>06F:191</td>
<td>Hawkinson Scholar Seminar: Topics in Finance</td>
<td>0 s.h.</td>
<td>Subsectors in the financial services industry, including hedge funds, investment banking, commercial banking; valuation techniques used in real-world mergers, acquisitions, equity offerings, debt financing, and so forth.</td>
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<tr>
<td>06F:195</td>
<td>Honors Thesis in Finance</td>
<td>3 s.h.</td>
<td>Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.</td>
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<tr>
<td>06F:199</td>
<td>Academic Internship</td>
<td>1-3 s.h.</td>
<td>Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.</td>
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</tbody>
</table>

**Primarily for Graduate Students**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>06F:201</td>
<td>Directed Readings in Finance-M.B.A.</td>
<td>arr.</td>
<td></td>
<td>Prerequisite: consent of instructor.</td>
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<tr>
<td>06F:205</td>
<td>Contemporary Topics in Finance</td>
<td>arr.</td>
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<tr>
<td>06F:206</td>
<td>Financial Modeling and Firm Valuation</td>
<td>3 s.h.</td>
<td>How to model firm value from a discounted cash flow perspective; identify a company’s key value drivers, create spreadsheet valuation models; projected financial valuation integrates projected pro forma accounting statements; forecasting, free cash flow estimation, industry competitive analysis. Prerequisite: 06N:225.</td>
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<tr>
<td>06F:207</td>
<td>Wealth Management</td>
<td>3 s.h.</td>
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</tbody>
</table>
Rapid growth of the field of wealth management over several decades, driven by general increase in personal wealth and increased responsibility for individuals to manage their own wealth; knowledge and tools to enter the financial services industry; financial planning industry, client characteristics, tax shield structures, insurance, asset allocation plans, estate planning, behavioral finance. Prerequisite: 06N:225

**06F:208 Structured Finance-Securitization** 3 s.h.
Design of debt, equity, and hybrid financing techniques to resolve issuer and investor problems that conventional methods cannot address; why and when corporations and financial institutions issue structured securities; how securities are designed and priced; how securities meet investors’ needs; securitized assets, mortgages, asset-backed securities, collateralized debt obligations, credit risk, valuation, cost of capital; legal, tax, and regulatory issues; design and implementation of structured-financed products. Prerequisite: 06N:225.

**06F:209 Investment Banking** 3 s.h.
Overview of industry consolidation, underwriting of securities, merger valuation options, legal and regulatory considerations, IPOs, private equity; industry-specific case studies, student/practitioner discussion of issues facing industry. Prerequisite: 06N:225 for graduate students; consent of instructor for undergraduates.

**06F:210 Financial Information Technology** 1 s.h.
Applications of commonly used financial software and data systems reviewed by student teams.

**06F:212 Portfolio Management** 3 s.h.
Introduction to fundamental elements of modern portfolio theory, application to investment analysis; investment environment, instruments, types of investors; concepts of risk and return, broad perspective on historical risk and return of various asset classes; asset allocation decision, risk and return dynamics of a multiple securities portfolio; varied asset pricing models, how capital markets work for investors and users of capital. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

**06F:213 Derivatives** 3 s.h.
Examination of the wide range of derivative securities that cover the financial landscape; the market place, trading, and investors; different derivative securities in existence, their relationship with the underlying securities, and pricing; applications of derivative securities to risk management and speculation; application of principles to fixed income, international finance, real estate, and securitization. Prerequisite: 06N:225.

**06F:214 Real Estate Finance and Investments** 3 s.h.
In-depth understanding of concepts and techniques of real estate financial analysis, equity investment decision making; real estate investing from analysis of developments through the securitization of mortgages; mortgage markets and pricing, real estate finance and investments, mortgage-backed securities, development process, real estate valuation, tax effects, securitized real estate, real estate cycles, application of derivative instruments, strategic asset allocation. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

**06F:215 Corporate Investment and Financing Decisions** 3 s.h.
Underpinnings and optimization of corporations’ investment and financing decisions; firm-wide and project-specific cost of capital, optimal capital structure decisions; in-depth capital budgeting methods, including real options techniques; corporate investment module of the class includes simulation analysis using Crystal Ball; cost of capital, valuation techniques, advanced capital budgeting, capital structure and dividend policy, option pricing models applied to corporate finance. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

**06F:216 Fixed Income Securities** 3 s.h.
Conceptual framework and tools to undertake the valuation of fixed income securities and the management of fixed income portfolios; varied fixed income instruments and the markets in which they trade; introduction to basic building blocks of fixed income analysis, including concepts of duration, convexity, and term structure of interest rates; application of concepts in bond portfolio immunization strategies; use of interest rate derivatives in portfolio hedging applications. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

**06F:217 Alternative Investments and Portfolio Strategies** 3 s.h.
Continuation of 06F:212; alternative investments, including hedge funds, private equity funds, and venture capital vehicles; purpose of alternative investments, including the risk/return profile of alternatives and correlations with traditional asset classes; specific hedge fund styles, strategies, risk profiles; portfolio strategy topics, including diversification benefits, management of downside risk, international diversification, behavioral finance, performance measures, and performance attribution analysis. Prerequisites: 06F:212 and 06N:225.
06F:218 Corporate Financial Strategy 3 s.h.
Major strategic decisions within the corporate form; risk management, including why firms engage in it, their methods for doing so, and exercises in the simulation of uncertainty; dividends and repurchases under the payout policy decision; corporate governance topics, including executive compensation, board structure, and institutional monitoring; merger and acquisitions analysis, including regulation, valuation, anti-takeover devices, payment method, and LBOs; divestitures and other restructuring topics, including corporate diversification, spin-offs, carve-outs, private workouts, and Chapter 11. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

06F:219 Finance for Entrepreneurs 3 s.h.
Understanding the process of capital acquisition and cash flow management; techniques, projections, and measurements used in valuing and funding new and growing ventures; sources and strategies for raising capital. Same as 06T:233.

06F:220 Commercial and Investment Banking 3 s.h.
Overview of commercial and investment banks; principles of underwriting securities, IPOs, mergers and acquisitions, commercial lending, funding sources, asset liability management, capital management. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

06F:221 Applied Securities Analysis - Henry Fund I 3 s.h.
Manage Henry Fund portfolio, learn legal environment in which the fund operates, analyze potential investments, implement controls to monitor the fund’s performance; decisions and investment recommendations made by students; each student analyzes an economic sector and geographic region (i.e., utilities analyst and specialist in South East Asia); while the fund cannot currently invest directly in foreign listed stocks, it holds US listed stocks with significant overseas interests and students are able to invest in a number of ADR's. Prerequisite: 06N:225.

06F:222 Applied Securities Analysis - Henry Fund II 3 s.h.
Continuation of 06F:221. Prerequisites: 06F:221 and 06N:225.

06F:223 International Finance 3 s.h.
Introduction to structure and functioning of global financial markets; currency market, international equity markets; use of derivatives in currency risk management for corporate and investment needs; corporate investment decisions in an international context. Prerequisite: 06N:225. Corequisite: 06F:210 or consent of instructor.

06F:224 Security Analysis 3 s.h.
Valuation of financial securities (primarily equities) using discounted cash flow model; industry, regulatory analysis; financial statement analysis; active portfolio management; value-based management techniques; valuation of firms outside the United States. Prerequisite: 06N:225.

06F:225 Finance Theory I 3 s.h.
Consumption-based models of asset pricing; arbitrage, contingent claims; market efficiency and information economics, behavioral models; emphasis on theory. Prerequisite: Ph.D. enrollment.

06F:226 Seminar in Corporate Finance 3 s.h.
Valuation (DCF and CAPM); valuation under certainty, uncertainty; financial structure, cost of capital; dividend policy; firm investment in perfect, imperfect capital markets. Prerequisite: Ph.D. enrollment.

06F:227 Finance Theory II 3 s.h.
Continuous time theories of financial markets, including connection between an arbitrage-free pricing system and martingales; pricing of contingent claims, general equilibrium and term structure theory. Prerequisite: Ph.D. enrollment.

06F:228 Advanced Empirical Finance 3 s.h.
Market efficiency and term structure theory tests; tests of asset pricing models, dividend policy and financial structure issues. Prerequisites: Ph.D. enrollment and consent of instructor.

06F:229 Seminar in Finance 0 s.h.
Prerequisite: Ph.D. enrollment.

06F:230 Applications in Corporate Finance 3 s.h.
Hands-on experience in corporate finance; students work in teams on a corporate finance project for a corporation; partner companies identify financial issues, challenges, opportunities; students work with the companies and a faculty member to provide an analysis of the situation and proposals of actions to be taken. Prerequisite: 06N:225.

**06F:288 Directed Reading in Finance-Ph.D.**
Prerequisites: Ph.D. enrollment and consent of instructor.

**06F:290 Thesis in Business**
Prerequisite: consent of instructor.
International Business

The Tippie College of Business and the College of Liberal Arts and Sciences offer the undergraduate Certificate in International Business. The program is open to all University of Iowa undergraduate students and individuals who hold a bachelor's degree from The University of Iowa or another institution and are not enrolled in a graduate or professional program. See “Admission” at the end of this Catalog section.

Certificate in International Business

The Certificate in International Business requires 29 s.h. and satisfaction of the certificate's foreign language requirement (required credit varies according to the language studied). The program is designed for undergraduate students who intend to pursue careers in international business as well as those interested in gaining a better understanding of the global economy and a broader awareness of the political, historical, and social environment in which international business operates.

The certificate program includes study of international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area. The range of courses permits students to tailor areas of specialization suited to their individual interests and to complement majors in business and in liberal arts and sciences.

Students must maintain a g.p.a. of at least 2.00 on all certificate course work. Certificate courses may not be taken pass/nonpass. A course may not be used to satisfy more than one certificate requirement.

A minimum of 20 s.h. of certificate course work (other than language courses) must be completed at The University of Iowa or in approved study abroad programs. Students who want to use credit earned while studying abroad should consult an international business certificate advisor before leaving campus. University of Iowa Guided Independent Study (correspondence study) is accepted toward the certificate.

When students complete the certificate requirements and graduate, the Certificate in International Business is noted on their transcript. Contact the Tippie College of Business Undergraduate Program Office or the CLAS Academic Programs & Services office for more information.

The certificate requires course work in international business, international relations and institutions, foreign language, and area studies, as follows.

INTERNATIONAL BUSINESS

These courses provide students with an essential understanding of economics, which is central to all business operation. They also help students develop knowledge of the functional areas of international business.

Both of these:

06E:001 Principles of Microeconomics  4 s.h.
06E:002 Principles of Macroeconomics  4 s.h.

Three of these (total of 9 s.h.):

06E:125 Global Economics and Business  3 s.h.
06E:129 Economic Growth and Development  3 s.h.
06E:173 International Economics  3 s.h.
06F:130 International Finance  3 s.h.
06J:146 International Business Environment  3 s.h.
06M:151 International Marketing  3 s.h.
091:282 International Business Transactions  3 s.h.
091:287 International Trade Law: Basic Norms and Regulations  3 s.h.

INTERNATIONAL RELATIONS AND INSTITUTIONS

These courses familiarize students with comparative politics, social geography, foreign policy, and issues related to world population and the environment--topics relevant to decision making in the international business world.

Two of these (total of 6 s.h.):
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A:148</td>
<td>Race, Gender, U.S. International History</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16A:152</td>
<td>United States in World Affairs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:138/152:138</td>
<td>History of International Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>019:156</td>
<td>Comparative Communication Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:041</td>
<td>Introduction to the Politics of Russia and Eurasia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:043</td>
<td>Introduction to Politics in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:060</td>
<td>Introduction to International Relations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:061</td>
<td>Introduction to American Foreign Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:130</td>
<td>Consequences of War</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:137</td>
<td>Introduction to Political Economy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:142</td>
<td>European Integration</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:149</td>
<td>Problems in Comparative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:150</td>
<td>Comparative Administrative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:151</td>
<td>Political Leadership</td>
<td>3 s.h.</td>
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<tr>
<td>030:155</td>
<td>International Courts: The Intersection of Law and Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:156</td>
<td>Ethnic and Religious Conflict in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:160</td>
<td>Women and Politics in Global Perspective</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:161</td>
<td>International Organization and World Order</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:162</td>
<td>American Foreign Policies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:163</td>
<td>Chinese Foreign Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:165</td>
<td>International Conflict</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:166</td>
<td>Global Political Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:167</td>
<td>Politics and the Multinational Enterprise</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:168</td>
<td>Politics of Terrorism</td>
<td>3 s.h.</td>
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<tr>
<td>030:169</td>
<td>Problems of International Politics</td>
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<td>The Politics of International Economics</td>
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<td>State Failure in the Developing World</td>
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<td>030:177</td>
<td>Globalization</td>
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<td>Causes, Consequences, and Management of Civil War</td>
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<td>Human Rights and Asian Values</td>
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<td>Families in Comparative Perspective</td>
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<td>Population Geography</td>
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<td>Introduction to Political Geography</td>
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<td>The Global Economy</td>
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<td>044:035</td>
<td>World Cities</td>
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<td>091:193</td>
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<td>Anthropology and Contemporary World Problems</td>
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<td>Cultural Politics</td>
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<td>The Anthropology of War and Peace</td>
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<td>Environmentalism Cross-Culturally</td>
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<td>113:116</td>
<td>Urban Anthropology</td>
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<td>Gender and Indian Diaspora</td>
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<td>Environment and Culture</td>
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<tr>
<td>113:144</td>
<td>Culture and Consumption</td>
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</tr>
</tbody>
</table>

**FOREIGN LANGUAGE**

This component enables students to develop an intermediate level of competence in a second language. Through language study, students not only gain insight into the culture of another region of the world, they also develop a deeper understanding of their own language and culture.

Students must complete an approved foreign language sequence. For questions about languages not listed below or about study abroad course work, see an international business certificate advisor.

*Arabic*
All of these:
195:101 Elementary Modern Standard Arabic I 5 s.h.
195:102 Elementary Modern Standard Arabic II 5 s.h.
195:111 Intermediate Modern Standard Arabic I 5 s.h.
195:112 Intermediate Modern Standard Arabic II 5 s.h.

Chinese

All of these:
039:008-039:009 First-Year Chinese: First Semester - First-Year Chinese: Second Semester 10 s.h.

French

One of these sequences:
009:001-009:002 Elementary French I-II 8 s.h.
009:010 First-Year French Review 5 s.h.

All of these:
009:011-009:012 Intermediate French I-II 8 s.h.
One course for which 009:012 is prerequisite (may include Iowa Regents Program credit)

German

One of these:
013:011-013:012 Elementary German I-II (both courses) 8 s.h.
013:014 First-Year German Review 5 s.h.

All of these:
013:021 Intermediate German I 4 s.h.
013:022 Intermediate German II 4 s.h.
One course for which 013:022 is prerequisite

Hindi

039:123 First-Year Hindi: First Semester 5 s.h.
039:124 First-Year Hindi: Second Semester 5 s.h.
039:126 Second-Year Hindi: First Semester 4 s.h.
039:127 Second-Year Hindi: Second Semester 4 s.h.

Italian

One of these:
018:001-018:002 Elementary Italian-II (both courses) 8 s.h.
018:103 Intensive Elementary Italian 6 s.h.

All of these:
018:011-018:012 Intermediate Italian-II 8 s.h.
One course for which 018:012 is prerequisite
Japanese

One of these sequences:


Both of these:


Portuguese

One of these:

- 038:100-038:101 Accelerated Elementary Portuguese - Accelerated Intermediate Portuguese (both courses) 0-10 s.h.
- 038:102 Portuguese for Spanish Speakers 3 s.h.

One course for which 038:101 or 038:102 is prerequisite

Russian

All of these:

- 041:001-041:002 First-Year Russian I-II 8 s.h.
- 041:003-041:004 Second-Year Russian I-II 8 s.h.

One course for which 041:004 is prerequisite

Spanish

- 035:001-035:002 Elementary Spanish I-II (both courses) 8 s.h.

One of these:

- 035:011-035:012 Intermediate Spanish I-II (both courses) 8 s.h.
- 035:013 Accelerated Intermediate Spanish 6 s.h.

One course for which 035:012 is prerequisite

Swahili

All of these:

- 103:125-103:126 Elementary Swahili I-II 8 s.h.
- 103:127-103:128 Intermediate Swahili I-II 8 s.h.

AREA STUDIES

These courses help students learn about the culture, contemporary history, art, literature, and politics of the geographic region in which their second language is spoken. They cover topics critical to understanding sociocultural influences on individuals with whom students share the world, and with whom they may conduct business.

Students complete 6 s.h. from one geographic area. The area should be appropriate to the language the student chooses for the language requirement.

Asia

Appropriate for these languages: Chinese, Hindi, or Japanese

- 01H:016/039:016 Asian Art and Culture 3 s.h.
- 01H:031/039:028 Introduction to the Art of China 3 s.h.
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<td>01H:119/39J:159</td>
<td>Chinese Art and Culture</td>
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<td>01H:120/39J:120</td>
<td>Chinese Painting I</td>
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<td>01H:123/39J:123</td>
<td>Japanese Painting</td>
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<td>008:132</td>
<td>Literature of the Indian Subcontinent</td>
<td>3 s.h.</td>
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<td>016:005/039:055</td>
<td>Civilizations of Asia: China</td>
<td>3 s.h.</td>
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<td>016:006/039:056</td>
<td>Civilizations of Asia: Japan</td>
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<td>16W:140</td>
<td>Disease, Politics, and Health in South Asia</td>
<td>3 s.h.</td>
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<td>16W:172/39J:172</td>
<td>Japan--Age of the Samurai</td>
<td>3 s.h.</td>
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<td>16W:175/39J:175</td>
<td>Japan--U.S. Relations</td>
<td>3 s.h.</td>
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<td>16W:183</td>
<td>Vietnam War on Film</td>
<td>3-4 s.h.</td>
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<td>16W:198/039:196</td>
<td>China Since 1927</td>
<td>3 s.h.</td>
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<td>026:144/32:174</td>
<td>Indian Philosophy</td>
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<td>Buddhist Philosophy</td>
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<td>Government and Politics of the Far East</td>
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<td>Government and Politics of China</td>
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<td>Chinese Foreign Policy</td>
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<td>Human Rights and Asian Values</td>
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<td>032:004/039:064</td>
<td>Living Religions of the East</td>
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<td>032:006/039:006</td>
<td>Introduction to Buddhism</td>
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<td>Asian Humanities: India</td>
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<td>032:010/039:007</td>
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<td>032:014</td>
<td>Introduction to Indian Religions</td>
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<td>032:017/39J:017</td>
<td>Religion in Japanese Culture</td>
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<td>032:057</td>
<td>Religion in Modern India</td>
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<td>032:075/039:075</td>
<td>Asian Religious Classics</td>
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<td>032:081</td>
<td>Hindu Religion and Art</td>
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<td>Indian Religious Texts</td>
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<td>Zen Buddhism</td>
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<td>Asian Humanities: Japan</td>
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<td>Chinese Popular Culture</td>
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<td>039:034</td>
<td>The Languages of Asia in Cultural and Historical Perspective</td>
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<td>Understanding Korean Culture Wave</td>
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<td>Civilizations of Asia: South Asia</td>
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<td>039:122/113:129</td>
<td>Language/Politics of Culture in South Asia</td>
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<td>Indian Literature</td>
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<td>The Literature of Daoism</td>
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<td>039:141</td>
<td>Chinese Literature: Poetry</td>
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<td>039:142</td>
<td>Chinese Literature: Prose</td>
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<td>Topics in Asian Cinema</td>
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<td>039:158/048:158</td>
<td>East-West Literary Relations</td>
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<td>Modern Chinese Writers</td>
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<td>East Meets West: A Cross-Cultural Course</td>
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<td>Asian Studies</td>
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<td>39J:103</td>
<td>Language in Japanese Society</td>
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<td>39J:141/048:143</td>
<td>Traditional Japanese Literature in Translation</td>
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<td>39J:142/048:142</td>
<td>Modern Japanese Fiction in Translation</td>
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<td>Major Authors in Modern Japanese Literature</td>
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<td>Contemporary Japanese Culture</td>
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<td>113:107/131:107</td>
<td>Gendering India</td>
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<td>113:120</td>
<td>Popular Culture in South Asia</td>
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</table>
Europe

Appropriate for these languages: French, German, Italian, Portuguese, or Spanish

01H:157/009:130/033:130 Paris and the Art of Urban Life 3 s.h.
008:110 Literature and Culture of 20th- and 21st-Century Britain 3 s.h.
009:030 Cultural Misunderstandings: France and U.S.A. 3 s.h.
009:110 Introduction to French Literature: Twentieth Century 3 s.h.
009:114 French Civilization 3 s.h.
009:116 Cinema, Society, and Culture in Twentieth-Century France 3 s.h.
009:120 French-Speaking Cultures 3 s.h.
009:147/048:105 French Cinema 3 s.h.
009:148 Gender and Sexuality in French Cinema 3 s.h.
009:157 Twentieth-Century Europe in Literature and Film 3 s.h.
009:168/048:168 Post-Colonial Literature in France 3 s.h.
013:101 Introduction to German Literature 3 s.h.
013:105 German Cultural History 3 s.h.
013:108 The German Media 3 s.h.
013:115 Contemporary German Civilization 3 s.h.
013:117 Current Issues 3 s.h.
13E:075 Scandinavian Crime Fiction 3 s.h.
13E:119 German Film 3 s.h.
13E:120 Germany in the World 3 s.h.
13E:151 New Literature and Film from Switzerland: Beyond Heidi and Lucerne 3 s.h.
013:140 Literature in Film 3 s.h.
013:142 Twentieth-Century Children's Literature 3 s.h.
013:145 Twentieth-Century Literary History in Scenes/Stories 3 s.h.
16E:130 Modern European Imperialism 3 s.h.
16E:135 Twentieth-Century Europe: The Nazi Era 3 s.h.
16E:136 Twentieth-Century Europe: The Cold War and After 3 s.h.
16E:144 Modern France 1870-Present 3 s.h.
16E:146 France from 1815-Present 3 s.h.
16E:152 Modern Britain: The Twentieth Century 3 s.h.
16E:156 Germany Since 1914: Weimar, Hitler, and After 3 s.h.
16W:155 Europe and the U.S. in the Twentieth Century 3 s.h.
018:105 Modern Italian Fiction 3 s.h.
018:106 Modern Italian Poetry and Drama 3 s.h.
018:132 Images of Modern Italy 3 s.h.
030:140 Government and Politics of Europe 3 s.h.
030:142 European Integration 3 s.h.
030:147 Comparative Parties and Elections 3 s.h.
030:172 France in the 21st Century 3 s.h.
035:110 Readings in Spanish Literature and Culture 3 s.h.
035:150 Spanish Civilization 3 s.h.
035:161 Modern Spanish Literature 3 s.h.
038:107 Introduction to Portuguese Literature 3 s.h.
048:021 Introduction to European Film 3 s.h.
048:104 Topics in European Film 3 s.h.
048:157 Twentieth-Century Europe in Literature and Film 3 s.h.
048:163 Studies in 20th-Century European Literature 3 s.h.
048:167 Gender and Sexuality in French Cinema 3 s.h.

Latin America

Appropriate for these languages: Portuguese or Spanish

008:082 Latina/o Studies 3 s.h.
008:114 Caribbean Literature and Culture 3 s.h.
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<td>Mexican American History</td>
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<td>16A:113</td>
<td>Latina/o Immigration</td>
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<td>16W:106</td>
<td>Society and Revolution in Cuba</td>
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<td>History of Mexico</td>
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<td>Introduction to Modern Latin America</td>
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<td>16W:114</td>
<td>Latin America and the U.S.: The Historical Perspective</td>
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<td>035:134</td>
<td>Spanish American Short Story</td>
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<td>Latinos in the United States</td>
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<td>Culture and Language in the Andes</td>
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<td>Writing Brazil in the U.S.</td>
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<td>The Aztecs, Their Predecessors, and Their Contemporaries</td>
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<td>130:070</td>
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**Middle East/Africa**

Appropriate for these languages: Swahili, or proficiency in another contemporary Middle Eastern or African language

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<tr>
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<td>Introduction to the Art of West Africa</td>
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<td>Introduction to the Art of Central Africa</td>
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<td>African Literature</td>
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<td>Francophone Cinema</td>
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<td>Francophone Literature of the African Diaspora</td>
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<td>16W:153</td>
<td>Topics in the Modern Middle East</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:043</td>
<td>Introduction to Politics in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:156</td>
<td>Ethnic and Religious Conflict in the Muslim World</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:176</td>
<td>Governance in the Middle East</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
032:030 Introduction to Islam  
032:052 Women in Islam and the Middle East  
032:155 Human Rights and Islam  
032:157 Religion and Politics: The Islamic World  
032:159 Comparative Islamic Law  
032:167 Islamic Ethics and Political Thought  
044:161 African Development  
044:164 The Middle East  
048:159/187:159 African Literature Today  
187:060 The Middle East Today: A Social Inquiry  
187:160 Modern Arab Narrative Identities

Russia/Eastern Europe

Appropriate for these languages: Russian, or proficiency in a modern Slavic language

16E:178 Soviet Union 1917-1945  
030:041 Introduction to the Politics of Russia and Eurasia  
030:141 Russian/Post-Soviet Politics  
030:142 European Integration  
030:146 Russian Foreign Policy  
030:159 Politics Under Authoritarian Rule  
041:082 Youth Subcultures After Socialism  
041:093 Slavic Folklore  
041:094 Religion and Culture of Slavs  
041:096 Islamic Women in Russia  
041:098 Introduction to Russian Culture  
041:099 Russia Today  
041:100 Russian Literature in Film  
041:103 Russian Literature since 1917  
041:104/152:170 Health Care and Health Reforms in Russia  
041:126 Cult Films of the Last Soviet Generation  
041:155/008:155 Tolstoy and Dostoevsky  
041:160 Women in Russian Society  
041:164/048:164 Topics in Russian, East European, and Eurasian Studies  
041:165 West and East: Women in the Slavic World  
041:168/048:154 Twentieth-Century Czech Authors  
187:050 Introduction: East European and Central Asian Cultures

Admission

Undergraduate students pursuing a degree from The University of Iowa are eligible to work toward the Certificate in International Business. Students who already have earned a baccalaureate degree from The University of Iowa may return to complete or earn a certificate in international business if they are not enrolled in a graduate or professional program. Holders of baccalaureate degrees from other institutions who are not enrolled in a graduate or professional program may enroll at The University of Iowa to complete a Certificate in International Business. Contact the Office of Admissions.

Interested students must declare their intention to pursue the certificate with an international business certificate advisor and must submit a plan of study. Students admitted to the Tippie College of Business or advised at the college's Undergraduate Program Office should consult the advising staff in that office. Students in the College of Liberal Arts and Sciences should consult an international business certificate advisor in the Academic Advising Center.
Management and Organizations

Chair: Jay J. Christensen-Szalanski
Professors: Jay J. Christensen-Szalanski, Nancy R. Hauserman (Williams Teaching Professor), Amy L. Kristof-Brown (Henry B. Tippie Research Professor of Human Resource Management), Michael K. Mount (Henry B. Tippie Research Professor of Human Resource Management), Sara L. Rynes (John F. Murray Professor), Frank L. Schmidt (Gary C. Fethke Chair in Leadership), Greg L. Stewart (Henry B. Tippie Research Fellow)
Professors emeriti: Norman F. Kallaus, Charles R. Klasson, Lola L. Lopes, Gerald L. Rose, Peter P. Schoderbek, Duane E. Thompson, Jude P. West
Clinical professors: David K. Hensley, Lon D. Moeller
Associate professors: Terry L. Boles (Henry B. Tippie Research Fellow), Kenneth G. Brown (Henry B. Tippie Research Fellow), Maria L. Kraimer (Gary C. Fethke Research Fellow), Scott E. Seibert (Henry B. Tippie Research Fellow)
Assistant professor: Amy E. Colbert (Martin and Barbara Johnson Research Fellow)
Lecturers: Richard C. McCarty, Gale J. Mote, Dennis M. Schrag, Joseph N. Sulentic

Undergraduate Program

The Department of Management and Organizations offers study of human resource management; individual, team, and organizational behavior; employment law and ethics; leadership and personal development; negotiations; training and development; and organizational design.

Undergraduate Program

The department offers a Bachelor of Business Administration in management.

Bachelor of Business Administration

The Bachelor of Business Administration in management requires a minimum of 120 s.h., including 21 s.h. of work for the major. The program is designed to give students a thorough background in the department's study areas as well as an understanding of their application to real-life situations. Specific courses, research projects, and other experiences, such as simulations, are blended to include both theoretical and pragmatic aspects of the field.

The B.B.A. in management prepares students for a variety of line, staff, and professional positions in business, consulting firms, government, nonprofit institutions, and education. Graduates find employment opportunities in general management, sales, human resource management, strategic reward systems, staff benefits, organizational staffing, training and development, career management, and employment law. Many graduates pursue further study in law, human resources, industrial and organizational psychology, or labor relations.

Requirements for the management major are as follows. For B.B.A. common requirements, see Bachelor of Business Administration in the Tippie College of Business section of the Catalog.

06J:125 Entrepreneurial Strategy 3 s.h.
06J:130 Individuals, Teams, and Organizations 3 s.h.
06J:131 Strategic Human Resource Management 3 s.h.
06J:132 Law and Ethics in Management 3 s.h.
06J:156 Dynamics of Negotiations 3 s.h.

Two of these:

06J:140 Competitive Strategy 3 s.h.
06J:145 Training and Developing Human Resources 3 s.h.
06J:146 International Business Environment 3 s.h.
06J:147 Nonprofit Organizational Effectiveness I 3 s.h.
06J:148 Nonprofit Organizational Effectiveness II 3 s.h.
06J:159 Introduction to the U.S. Health Care System 3 s.h.
06J:162 Leadership and Personal Development 3 s.h.
06J:168 Topics in Management 3 s.h.
06J:171 Strategic Reward Systems 3 s.h.
06T:192 Entrepreneurship: Business Consulting 3 s.h.

Graduate Programs

The Department of Management and Organizations offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Management and Organizations web site.

The Master of Arts in business administration is a nontesis degree awarded only to students who begin the Ph.D.
program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

**Management and Organizations Courses**

**Primarily for Upper-Division Undergraduates**

**06J:020 Career Preparation**
arr.

**06J:029 First-Year Seminar**
1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

**06J:047 Introduction to Law**
3 s.h.
General history, structure of law; law's action in guiding changing economic, social patterns. Prerequisite: sophomore standing.

**06J:048 Introduction to Management**
3 s.h.
Principles of management, organizational structure, decision making, leadership, line-staff relationships, administration of organizations. Prerequisite: sophomore standing.

**06J:101 Directed Readings in Management and Organizations**
arr.
Prerequisite: consent of instructor.

**06J:125 Entrepreneurial Strategy**
3 s.h.
The synergistic effect of entrepreneurial attributes (e.g., innovation, creativity, opportunity recognition) and managerial attributes (e.g., strategic management, planning, budgeting) on profit and nonprofit organizations.

**06J:130 Individuals, Teams, and Organizations**
3 s.h.
Theories of organizational behavior applied to current business trends for individuals, teams, organizations; personality, managing diversity, work-family conflict, self-managed teams, charismatic leadership, work motivation, managing conflict, organizational culture. Prerequisites: 06J:047 and 06J:048.

**06J:131 Strategic Human Resource Management**
3 s.h.
People management activities, policies, and practices that promote effective organizations; how changes in technology, business restructuring, legal and social concerns, other issues affect human resource management. Prerequisites: 06J:047 and 06J:048.

**06J:132 Law and Ethics in Management**
3 s.h.
Laws affecting employers and employees, such as regulatory health and safety policies, unemployment and retirement benefits, and employment discrimination including hiring, termination, testing issues. Prerequisites: 06J:047 and 06J:048.

**06J:140 Competitive Strategy**
3 s.h.
How top managers plan and execute strategies that enable businesses to compete in local and global markets; analytical skills for coping with organizational uncertainties and business realities from the perspective of a senior manager; case studies. Prerequisite: 06J:048. Recommended: senior standing.

**06J:145 Training and Developing Human Resources**
3 s.h.
Concepts, practices in training and development; strategic issues affecting the design, implementation, and evaluation of training programs and of career management and organizational development activities. Prerequisite: 06J:131.

**06J:146 International Business Environment**
3 s.h.
Differences in international and domestic business; cultural, legal, political factors for managers. Prerequisite: junior or higher standing.

**06J:147 Nonprofit Organizational Effectiveness I**
3 s.h.
Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 032:127, 042:157, 06T:144, 096:168.

06J:148 Nonprofit Organizational Effectiveness II 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 024:148, 032:128, 042:158, 096:169.

06J:156 Dynamics of Negotiations 3 s.h.
Predictable aspects and dynamics of bargaining experiences; simulations, experiential exercises to foster skills needed for effective negotiation in almost any situation. Prerequisite: senior standing.

06J:159 Introduction to the U.S. Health Care System 3 s.h.
The U.S. health care system; socioeconomic, political, and environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy, concepts, terminology. Same as 174:102.

06J:162 Leadership and Personal Development 3 s.h.
Practical development and application of leadership and managerial skills to enhance individual and organizational effectiveness. Prerequisites: 06J:130, 06J:131, and senior standing.

06J:168 Topics in Management 3 s.h.
Topics not regularly offered in other courses. Prerequisites: 06J:047 and 06J:048.

06J:171 Strategic Reward Systems 3 s.h.
Role of pay and other rewards on organizational objectives; compensation's impact on employee behavior and performance; mix of pay and benefits in compensation systems; legal environment regulating pay and benefits; nonmonetary forms of reward. Prerequisite: 06J:131.

06J:195 Honors Thesis in Management and Organizations 3 s.h.
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06J:199 Academic Internship
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

Primarily for Graduate Students

06J:201 Directed Readings in Management and Organizations

06J:202 M.A. Research Report 1 s.h.
Prerequisite: nonthesis M.A. enrollment.

06J:205 Contemporary Topics in Management and Organizations
Ph.D. seminar; research topics in human resources and organizational behavior.

06J:227 Human Resource Management 2-3 s.h.
Systematic approach to managing human resources through practices consistent with validated theories and empirical research; human resources practices and business strategies; human resources strategy, recruitment and selection, training and development, employment law, international human resources, career management, compensation. Prerequisite: graduate standing.

06J:232 Legal Environment of Business 3 s.h.
Legal issues surrounding start-up and day-to-day management of a business; contract law, standard business formations, tort law, employment law, business ethics, alternative dispute resolution. Prerequisite: 06N:212.
06J:235 Maximizing Team Performance 3 s.h.
Current approaches to implementing effective teams within organizations; team selection and formation, group dynamics, facilitation skills, performance and obstacle management.

06J:242 Managing and Preventing Conflict 3 s.h.
Skills for management of high-conflict situations in the workplace and for long-term business success and job satisfaction; experience developing mediation-based skills and communication techniques to prevent and resolve workplace conflicts.

06J:244 Managing Organizational Performance 3 s.h.
Concepts and practices for effective management, measurement, and improvement of organizational performance; establishing and communicating organizational expectations, the manager as coach and motivator, measurement and methodologies, performance improvement methods. Prerequisite: 06N:212 or a management course.

06J:245 Strategic Employee Development 3 s.h.
Concepts, practices in training and development; strategic issues affecting the design, implementation, and evaluation of training programs and of career management and organizational development activities. Prerequisite: 06N:212.

06J:246 International Management 3 s.h.
Management issues encountered in international business settings; assessing international politico-economic and sociocultural environments; managing a multicultural workforce; forming international structures and alliances; developing international business strategy.

06J:247 Nonprofit Organizational Effectiveness I 3 s.h.

06J:248 Nonprofit Organizational Effectiveness II 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 024:248, 028:258, 032:228, 042:248, 091:322, 174:248.

06J:256 Dynamics of Negotiations 3 s.h.
Predictable aspects and dynamics of bargaining experiences; simulations, experiential exercises to foster skills needed for effective negotiation in almost any situation. Prerequisite: M.B.A. enrollment or consent of instructor.

06J:257 Legal Issues in Human Resources Management 3 s.h.
Laws, regulations governing human resource management policies, practices; employee discipline, termination, layoffs, privacy, involvement programs; occupational safety and health; workers’ compensation; discrimination. Prerequisite: 06N:212.

06J:261 Motivating Employees in Changing Environment 3 s.h.
Contemporary motivation theories and their application; role of intrinsic motivation, justice, incentive pay, job design, goals, feedback, social influence, attitudes, creativity. Prerequisites: 06N:212 and 06N:227.

06J:262 Leadership and Personal Development 3 s.h.
Major theories; determinants of leader effectiveness, personal and career success; practical development of leadership, managerial skills to enhance individual, organizational effectiveness. Prerequisite: 06N:212.

06J:263 Strategic Management of Change 3 s.h.
How congruence in organizational strategy, structure and culture, job design, and employee characteristics produces effective organizations; emphasis on managing organizational change, implementing and working in teams, project management. Prerequisite: 06N:212.

06J:265 Methods for Qualitative Research 2 s.h.
Qualitative methods available to researchers; role and contributions of qualitative methods in research; reasons why qualitative research papers get rejected by journals and strategies to avoiding them; work with qualitative data; philosophy of science, formulating research questions, sampling and gaining access, alternative qualitative data collection methods, ways of coding and analyzing qualitative data, building theory from qualitative data.

06J:266 Methods for Experimental Research  
Research and principles of experimental design, including heterogeneity of variance, analysis of variance (ANOVA), multi-attribute analysis of variance (MANOVA); orthogonal, planned and unplanned comparisons, factorial experiments, including policy capturing designs, repeated measures and nested-factors design, Latin square designs; data sets with SPSS.

06J:267 Organizational Theory Ph.D.  
Organizational theory; effect of changing environment and technological factors on organizational structure and effectiveness; resource dependency and power, conflict, interorganizational network, population ecology, economic theories of organization, institutional theory.

06J:268 Seminar in Management  
Topics vary.

06J:269 Meta-Analysis in Behavioral Social Sciences (Ph.D.)  
Methods for quantitative integration of findings in behavioral and social sciences; overall effect size or correlation, whether conflicting findings documented in research literature are due to moderators (interactions) or statistical and measurement artifacts.

06J:270 Methods for Field Research (Ph.D.)  
Methods commonly used in behavioral research; critical evaluation of research; research process from idea generation to publication; practice in generating hypotheses, drafting surveys, analyzing data, reviewing manuscripts.

06J:271 Performance Management  
Theories and research pertaining to employee work performance and evaluation; conceptual definitions of work performance; theories concerning the determinants of work performance; theory and research explaining the effectiveness and biases of performance evaluation systems; theories and empirical research on performance feedback; areas for future theoretical and empirical investigation in performance management.

06J:272 Training and Careers (Ph.D.)  
Research-based examination of training and development programs; emphasis on societal, legal, organizational factors that affect training program design, implementation, evaluation; systemic relationships among training, careers, organizational development management.

06J:273 Measurement Theory and Methods in the Behavioral and Social Sciences (Ph.D.)  
Classical measurement theory, methods applied to psychological tests, questionnaires, ratings of work-related and other performances, behaviors; reliability theory and methods, instrument construction and item analysis, criterion construction, validity, combining and weighting instruments, cross-validation. Prerequisite: basic statistical methods course.

06J:274 Staffing Organizations (Ph.D.)  
Aspects of selection, including professional and legal standards, job analysis techniques, validation strategies, criterion development, selection techniques (e.g., psychological tests, interviews, biographical data, assessment centers), ethical issues.

06J:275 Group Processes and Conflict (Ph.D.)  
Understanding and implementing work groups in organizations; social influence and group processes, including communications, conflict, intergroup relations.

06J:276 Leadership (Ph.D.)  
Understanding and implementing leadership in organizations; focus on reading and analysis of basic research-related leadership theories; "great person" theories in contrast to traditional behavioral and situational theories.

06J:277 Motivation and Attitudes (Ph.D.)  

Motivational processes, attitudes, communication and interorganizational networks; emphasis on motivational antecedents and consequences, theoretical implications for models of work performance.

**06J:278 Reward Systems (Ph.D.)**
Compensation systems, government influences, equity in compensation and individual wage determination; research-based examination of performance evaluation and appraisal, theories of work performance.

**06J:279 Individual Differences in Traits/Abilities (Ph.D.)**
Research on individual and group differences in intelligence, personality, interests, values, other traits; findings related to performance in work world.

**06J:290 Thesis in Management and Organizations**

**06J:295 Mentored Research**
Management research conducted by doctoral students under faculty supervision; culminates in second-year research paper.
The Department of Management Sciences specializes in using advanced computation and mathematical techniques to solve critical business problems. Its research and instruction strengths include operations management, information systems, and quantitative methods.

### Undergraduate Program

The department offers a Bachelor of Business Administration in management information systems.

#### Bachelor of Business Administration

The Bachelor of Business Administration in management information systems requires a minimum of 120 s.h., including 22 s.h. of work for the major. The program provides a variety of educational experiences that develop students' knowledge of managerial decision-making systems. Students acquire skill in applying this knowledge by constructing quantitative models, using computer technology, and creating database systems.

Students majoring in management information systems prepare for career opportunities in both manufacturing and service organizations. Graduates find entry-level work as computer programmers, systems analysts, sales representatives with computer companies, and management trainees. Entry-level work in operations management is found in materials management, line supervision, purchasing, and manufacturing systems.

Requirements for the management information systems major are as follows. For B.B.A. common requirements, see Bachelor of Business Administration in the Tippie College of Business section of the Catalog.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06K:126</td>
<td>Visual Basic Programming</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:182</td>
<td>Applications Database Management Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:183</td>
<td>Systems Analysis and Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:184</td>
<td>Introduction to Data Communications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:185</td>
<td>MIS Capstone Project</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:016</td>
<td>Computer Science I: Fundamentals</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>One additional course from approved list of management sciences courses</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

### Graduate Programs

The Department of Management Sciences offers the Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Management Sciences web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.

### Management Sciences Courses

#### Primarily for Undergraduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06K:029</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).
06K:070 Computer Analysis
The computer and its uses in organization operation, management; computer systems terminology, programming, management information systems, use of applications software.

For Undergraduate and Graduate Students

06K:100 Operations Management
Strategic, tactical, operational issues that arise in management of production and service operations; product and process design, facilities planning, quality management, materials management, operations planning and scheduling, emerging technologies in production and service management. Prerequisites: 22S:008 and junior standing. Pre- or corequisite: 06K:070.

06K:101 Directed Readings
Prerequisite: consent of instructor.

06K:126 Visual Basic Programming

06K:128 Web and Multimedia
How multimedia tech is accomplished; tools used with each tech and modifications needed to function efficiently on the web; projects culminating in a web site.

06K:176 Managerial Decision Models
Mathematical programming, including linear, nonlinear, and dynamic programming, with applications in economics and management; classical optimization techniques, transportation, network flow problems. Prerequisite: 06K:070.

06K:177 Management Sciences Topics
Special topics in management sciences and information systems.

06K:180 Applied Information Systems
Application of computer technology to accounting and transaction processing systems; information systems infrastructure and trends; problem solving with microcomputer spreadsheets, databases; accounting cycle operations using accounting software. Prerequisites: 06A:001, 06A:002, and 06K:070.

06K:182 Applications Database Management Systems
Design and implementation of a database using relational DBMS; emphasis on issues of logical and physical design, database administration, concurrency control, maintenance. Prerequisite: 06K:070.

06K:183 Systems Analysis and Design
Design and implementation of an information system; student projects in determination of information needs, system design, information plan development; construction of prototype information system. Prerequisites: 06K:126 and B.B.A. senior standing. Pre- or corequisite: 06K:182 or consent of instructor.

06K:184 Introduction to Data Communications
Computer communications: computer-communication system, hardware, data transmission principles; examples of existing communication networks; related managerial issues. Prerequisites: 06K:070 and B.B.A. senior standing.

06K:185 MIS Capstone Project
Individual or team senior project incorporating knowledge and skills from management information science curriculum; projects from real-world customer, such as a software system, security system, or network design; outcomes including written documentation, presentation, project report. Prerequisite: 06K:183. Corequisite: 06K:184 or consent of instructor.

06K:186 Database Management II
Advanced conceptual and logical design, in-depth SQL, DB administration, concurrency control, web database access; theory and practice. Prerequisite: 06K:182 or equivalent.
06K:188 Computer and Network Security
Network-based attacks and how to respond to them; access control, authentication methods, encryption, Public Key Infrastructure, operating system hardening, security policy practices.

06K:189 E-Commerce Technology
Technical tools for building e-commerce web sites; Dot Net versions of active server pages, VB, C#; student project to build prototype of an e-commerce site. Prerequisite: 06K:070.

06K:190 Network Design and Performance
Computer software as central to the study of network facilities selection, performance metrics; skill development through work with the telecommunications hierarchy’s layered structure. Prerequisite: 06K:184.

06K:191 Business Consulting
Organizational consulting; emphasis on integration of strategy, business processes, technology, and change management through case-based learning techniques; proposal simulation. Prerequisite: 06K:070.

06K:192 Supply Chain Management
Key issues in design and management of global supply chains; issues in integration of business processes across organizations that are concerned with movement of goods, delivery of services, and information flow along the supply chain in order to create value for the customer; issues in coordinating production and logistics within a firm and with outside suppliers and customers in the supply chain. Prerequisite: 06K:100.

06K:195 Honors Thesis in Management Sciences
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06K:199 Academic Internship
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

Primarily for Graduate Students

06K:201 Directed Readings
Prerequisite: consent of instructor.

06K:217 Data and Decisions II
Advanced quantitative analysis techniques with management applications; multiple regression, time series, monte-carlo simulation, and linear, nonlinear, and discrete optimization; emphasis on spreadsheet-based modeling. Prerequisite: 06N:216 or consent of instructor.

06K:218 Statistical Methods for Process Improvement
Strategies to improve quality of products, effectiveness of processes; managerial issues, statistical methods, quality, customer needs, customer satisfaction, quality measures and standards; understanding and reducing variability; builds on 06N:216 (Data and Decisions); data-based management, statistical process control, control charts, capability indexes, design of experiments. Prerequisite: 06N:216.

06K:220 Introduction to Information Systems
Effective ways for business firms to harness the power of information technology for strategic purposes; conventional and emerging architectures of information systems; integrated perspective on structural relationships among IT components; emphasis on case studies.

06K:223 Management of E-Commerce Systems
Benefits, capabilities, and related information technologies that compose the current state of electronic commerce; how to design, develop, and operate electronic commerce transaction processing-based applications; focus on web-based e-commerce systems and associated business models.

06K:226 Visual Basic Programming


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>06K:227</td>
<td>Introduction to Modeling with VBA</td>
<td>3 s.h.</td>
<td>Introduction to programming Visual Basic for Applications in Excel; case studies in finance, marketing, operations, accounting. Prerequisite: 06N:216.</td>
</tr>
<tr>
<td>06K:228</td>
<td>Web and Multimedia</td>
<td>3 s.h.</td>
<td>How multimedia tech is accomplished; tools used with each tech and modifications for efficient function on the web; projects culminating in a web site. Prerequisite: 06K:070.</td>
</tr>
<tr>
<td>06K:230</td>
<td>Database Systems</td>
<td>3 s.h.</td>
<td>Theories and methodologies for semantic, logical, and physical database design; entity/relationship diagrams and their mapping to database schemas; normalization; languages for relational database systems, including relational algebra, Structured Query Language, query by example; query optimization and index selection; database and view creation, query and update processing; form and report design; practice with commercial DBMS products; integrity, security, concurrency control, transaction recovery.</td>
</tr>
<tr>
<td>06K:234</td>
<td>Information and Knowledge Management</td>
<td>3 s.h.</td>
<td>How organizations acquire, manage, and use information; knowledge management and competitive intelligence, information from inside and outside the organization; organization types, including library, corporate, and nonprofit. Corequisite: 06K:230. Same as 021:234.</td>
</tr>
<tr>
<td>06K:235</td>
<td>Strategic Information Technology</td>
<td>arr.</td>
<td>Impact of emerging technology, especially information technology, on a modern business; solving business problems using the intersection of innovation and emerging technology; impact of near-term technology advances (such as e-commerce tools, personal digital devices and integrated business systems); potential impact of emerging technologies which will significantly impact the business world in the near future; highly interactive course includes lecture, readings, case studies, and guest speakers.</td>
</tr>
<tr>
<td>06K:272</td>
<td>Database Analysis and Design</td>
<td>3 s.h.</td>
<td>Advanced topics in database management systems.</td>
</tr>
<tr>
<td>06K:275</td>
<td>Knowledge Discovery</td>
<td>3 s.h.</td>
<td>Knowledge discovery process, including data reduction, cleansing, transformation; advanced modeling techniques from classification, prediction, clustering, association; evaluation and integration. Prerequisite: consent of instructor. Same as 22C:141.</td>
</tr>
<tr>
<td>06K:277</td>
<td>Management Sciences Topics</td>
<td>3 s.h.</td>
<td>Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>06K:278</td>
<td>Web Mining</td>
<td>3 s.h.</td>
<td>Techniques for mining the web and other unstructured or semistructured, hypertextual, distributed information repositories; crawling, indexing, ranking, filtering algorithms.</td>
</tr>
<tr>
<td>06K:285</td>
<td>Project Management</td>
<td>3 s.h.</td>
<td>Preparation for managing projects and project portfolios; project selection, project planning and budgeting, scheduling, resource allocation, project control; integration of project planning tools, including project management software.</td>
</tr>
<tr>
<td>06K:286</td>
<td>Linear Programming</td>
<td>3 s.h.</td>
<td>Mathematical programming models; linear and integer programming, transportation models, large-scale linear programming, network flow models, convex separable programming. Prerequisites: calculus and linear algebra courses. Same as 056:270.</td>
</tr>
<tr>
<td>06K:287</td>
<td>Discrete Optimization</td>
<td>3 s.h.</td>
<td>Introduction to modeling and solving discrete optimization problems; integer programming, network flows, dynamic programming. Prerequisite: 06K:286 or consent of instructor.</td>
</tr>
<tr>
<td>06K:288</td>
<td>Computer and Network Security</td>
<td>3 s.h.</td>
<td>Network-based attacks and how to respond to them; access control, authentication methods, encryption, Public Key Infrastructure, operating system hardening, security policy practices.</td>
</tr>
</tbody>
</table>
06K:289 E-Commerce Technology 3 s.h.
Technical tools for building e-commerce web sites; Dot Net versions of active server pages, VB, C#; student project to build prototype of an e-commerce site.

06K:290 Thesis in Management Sciences 3 s.h.
Prerequisites: Ph.D. enrollment and consent of instructor.

06K:292 Supply Chain Management 3 s.h.
Design, operation, and management of a supply chain; supplier and customer contracting and partnering, inventory, transportation and logistics. Prerequisite: 06N:229.

06K:293 Seminar in Lean Practices 3 s.h.
Lean principles across the enterprise; real-world applications in manufacturing and service sectors; taught in conjunction with LAI Lean Academy.

06K:294 Rapid Continuous Improvement 3 s.h.
Hands-on experience working on rapid continuous improvement (RCI) teams sponsored by industrial affiliates of the business college involved in using RCI. Offered spring break. Prerequisite: consent of instructor.

06K:295 Field Studies in Operations Management 3 s.h.
Supervised study of operations systems in field settings; problem formulation, identification of process improvements, communication of results to client organizations. Prerequisite: 06N:229.

06K:296 Six Sigma Project 3 s.h.
Apply theory from the classroom into the real world; use classroom learning from 06K:218 to work on a company-sponsored Six Sigma style project, which helps complete the requirements for Six Sigma Green Belt certification. Prerequisite: 06K:218.

06K:297 Research Seminar in Management Sciences 0 s.h.
Current research topics. Prerequisite: Ph.D. enrollment or consent of instructor.

06K:299 Special Topics in Management Sciences 3 s.h.
Prerequisite: consent of instructor.
The Department of Marketing offers programs that follow business trends and lead business practice.

Undergraduate Program

The department offers a Bachelor of Business Administration in marketing.

Bachelor of Business Administration

The Bachelor of Business Administration in marketing requires a minimum of 120 s.h., including 20 s.h. of work for the major. The program is designed to provide undergraduate students with an understanding of the business, social, and economic roles of marketing and to prepare them for marketing careers.

Several decades ago, the study of marketing dealt almost exclusively with business activities involved in the flow of goods from production to consumption. Today it includes principles that are more widely applicable; they are as relevant to the success of arts, sports, and social programs as they are to firms selling goods and services. A major in marketing includes study in the behavioral sciences, communications, statistical analysis, and computer methods as well as marketing decision making.

Graduates find employment opportunities as market analysts, merchandise managers, buyers, purchasing agents, advertising managers, brand managers, and sales representatives in a variety of profit and nonprofit organizations.

Requirements for the marketing major are as follows. For B.B.A. common requirements, see Bachelor of Business Administration in the Tippie College of Business section of the Catalog.

06M:100 Introduction to Marketing Strategy 3 s.h.
06M:102 Professional Preparation in Marketing 2 s.h.
06M:134 Marketing Research 3 s.h.
06M:135 Consumer Behavior 3 s.h.
06M:147 Marketing Management (must be taken in senior year) 3 s.h.

Two of these:
06M:105 Web Business Strategy 3 s.h.
06M:107 Retail Strategies 3 s.h.
06M:125 Direct Marketing Strategies 3 s.h.
06M:137 Advertising Theory 3 s.h.
06M:139 Sales Management 3 s.h.
06M:151 International Marketing 3 s.h.
06M:190 Contemporary Topics in Marketing (counts once toward the major) 3 s.h.
06M:197 Field Studies in Marketing 3 s.h.

Graduate Programs

The Department of Marketing offers a Doctor of Philosophy in business administration. Ph.D. requirements are described under "Graduate Programs" in the Tippie College of Business section of the Catalog and on the Department of Marketing web site.

The Master of Arts in business administration is a nonthesis degree awarded only to students who begin the Ph.D. program and decide not to continue. Incoming students may not elect to pursue the M.A.

For information about the M.B.A., see Master of Business Administration Program in the Catalog or contact the Tippie School of Management.
Marketing Courses

Primarily for Upper-Division Undergraduates

06M:029 First-Year Seminar
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities).

06M:100 Introduction to Marketing Strategy
Philosophy and activities of marketing; marketing environment of an organization; strategies with respect to marketing decisions, buyer behavior; spreadsheet analysis of marketing problems. Prerequisites: 06E:001 and junior standing.

For Undergraduate and Graduate Students

06M:101 Directed Readings in Marketing
Prerequisite: consent of instructor.

06M:102 Professional Preparation in Marketing
Overview of marketing careers; how marketing strategies are developed, evaluated, and implemented; how research on buyer behavior is used in marketing decisions; identification of research methodologies, analytical tools, and technologies for addressing marketing problems; marketing's relationship to other business and organizational functions and to the external environment. Prerequisite: 06M:100.

06M:105 Web Business Strategy
Introduction to World Wide Web business and marketing; concepts, methods, and applications associated with doing business on the web; web page construction and design; case studies and/or entrepreneurial projects. Prerequisite: 06M:100.

06M:107 Retail Strategies
Strategies for retail site selection, store design, supply chain management, customer relationship management/customer service; merchandising management strategies for planning merchandise assortments, buying systems, buying merchandise, pricing, promotion. Prerequisite: 06M:100.

06M:125 Direct Marketing Strategies
Principles and processes of direct and database marketing; insight into the requirements for building a customer-based marketing strategy. Prerequisite: 06M:100.

06M:134 Marketing Research
Marketing, research methods; role of marketing research information as a tool in management decision making. Prerequisites: 06E:071 and 06M:100.

06M:135 Consumer Behavior
Behavioral and social aspects of marketing; research methods and findings from behavioral sciences, their relation to production, consumption, and marketing of products, services. Prerequisite: 06M:100.

06M:137 Advertising Theory
Advertising as a promotional force; emphasis on theory, planning, resulting strategic and tactical decisions made by advertising executives. Prerequisite: 06M:100.

06M:139 Sales Management
Personal selling, management of sales force; emphasis on recruitment, selection, training of sales representatives; problems in allocation of sales effort, supervision, control. Prerequisite: 06M:100.

06M:147 Marketing Management
Marketing problems of organizations; emphasis on marketing manager's role in developing, presenting goal-oriented marketing strategies; application of marketing concepts to real business situations. Prerequisites: 06M:100, 06M:134, 06M:135, a marketing elective numbered above 100, and senior standing.
06M:151 International Marketing 3 s.h.
Differences in global environment: how cultural considerations, political, legal, and economic conditions affect market entry strategies and marketing mix decisions; development of marketing plan for non-U.S. environments. Prerequisite: 06M:100.

06M:190 Contemporary Topics in Marketing 3 s.h.
Topics not regularly offered in other courses. Prerequisites: 06M:100 and consent of instructor.

06M:195 Honors Thesis in Marketing 3 s.h.
Independent student project directed by faculty or staff advisor; culminates in thesis that conforms to University Honors Program guidelines; may include empirical research, library research, applied projects. Prerequisites: 06B:194 or 06E:194, and admission to the Tippie College of Business honors program.

06M:197 Field Studies in Marketing 3 s.h.
Experience in planning, designing, carrying out, reporting on a marketing research project for a profit or nonprofit client organization; communication with managers, application of marketing research, meeting deadlines, converting research findings into action recommendations for management. Prerequisites: 06M:100, 06M:134, and consent of instructor.

06M:199 Academic Internship arr.
Professional internship experience with associated academic content. Repeatable. Prerequisite: consent of department chair.

06M:201 Directed Readings in Marketing arr.
Prerequisite: consent of instructor.

06M:205 Web Business Strategy 3 s.h.
Introduction to World Wide Web business and marketing; concepts, methods, and applications associated with doing business on the web; web page construction and design; case studies and/or entrepreneurial projects. Prerequisite: 06N:211.

06M:223 Brand Management 3 s.h.
Strategies for building, leveraging, and defending brands; principles of consumer behavior, how they relate to building brand identity and equity; branding of consumer goods and services. Prerequisite: 06N:211.

06M:225 Direct Marketing Strategies 3 s.h.
Principles and processes of direct and database marketing; insight into requirements for building a customer-based marketing strategy. Prerequisite: 06N:211.

06M:227 Category Management 3 s.h.
Marketing strategy related to manufacturing product line interactions, retailer product assortment, consumer response; category definition, product line pricing and branding, cross-category promotions, channel coordination, efficient consumer response, loyalty programs, database marketing. Prerequisite: 06N:211.

06M:228 Cases in Marketing Strategy 3 s.h.
Topics from marketing cases not covered in other marketing electives. Prerequisite: 06N:211.

06M:229 Customer Relationship Management 3 s.h.
Analytical approaches to customer relationship management; issues, techniques and terminology associated with database marketing and data mining; analysis of customer databases; assessing lifetime valuation (LTV) of customers, identifying "high potential" customers, estimating return on marketing investment, building predictive models to estimate the probability of response to a marketing campaign. Prerequisite: 06N:211.

06M:230 Marketing Research Methods 3 s.h.
Managerial applications of marketing research techniques, including methods of design, analysis, interpretation of marketing research studies; assessing value of information, sampling, sources of bias, instrument construction, interpretation of scanner data, geodemographic data, applications of integrated research systems. Prerequisites: 06N:211 and 06N:216.

06M:231 Business to Business Marketing
3 s.h.
Industrial buyer behavior, buyer-seller relationships, interactive product policy and market segmentation, distribution and selling systems; skill development in market strategy formulation for industrial products and services, and in solving problems and making decisions about industrial marketing. Prerequisite: 06N:211.

06M:232 Buyer Behavior
3 s.h.
Behavior of consumers and industrial buyers; research methods and findings from behavioral sciences applied to production, consumption, and marketing of products and services; application of consumer behavior concepts to managerial decision making. Prerequisite: 06N:211.

06M:233 Service Marketing
3 s.h.
Production, consumption, and marketing of services; solutions to problems faced by service managers; development of an organizational marketing system for delivery of quality service. Prerequisite: 06N:211.

06M:234 Product Management
3 s.h.
Techniques of new product development; idea generation, concept screening, product design, market testing, forecasting, brand management strategies within the firm. Prerequisites: 06N:211 and 06N:216.

06M:235 International Marketing
3 s.h.
Domestic versus international perspective; identification and evaluation of opportunities and risks in non-U.S. markets; research problems in global markets; effects of international organizations, foreign exchange, macroeconomic policies, local law, and cultural differences on consumer behavior and marketing decisions; multinational versus global marketing strategies (entry, product adaptation, channel logistics, pricing, promotion); emphasis on practical applications. Prerequisite: 06N:211.

06M:236 Advertising and Promotion Strategy
3 s.h.
Marketing communications as dialogue between producers and consumers, how promotional mix evolves; emphasis on advertising, sales promotion, branding. Prerequisite: 06N:211.

06M:237 Field Studies in Marketing
3 s.h.
Experience in planning, designing, carrying out, reporting on a marketing research project for a profit or nonprofit client organization; communication with managers, application of marketing research, meeting deadlines, converting research findings into action recommendations for management. Repeatable. Prerequisites: 06N:211 and 06N:216. Recommended: 06M:230.

06M:238 Contemporary Topics in Marketing
1-3 s.h.
Topics not regularly offered in other courses. Prerequisites: 06N:211 and graduate standing.

06M:242 Seminar in Marketing Models-Ph.D.
3 s.h.
Theoretical, operational models in marketing, with emphasis on recent advances; in-depth criticism of models, participation in model development project. Prerequisite: consent of instructor.

06M:243 Seminar in Consumer Behavior-Ph.D.
3 s.h.
Key facets of consumer behavior--information processing, perception, memory, learning, attitude formation, attitude change, decision making, emotion; behavioral research methods. Prerequisite: consent of instructor.

06M:245 Seminar in Research Topics-Ph.D.
arr.
Individual research topics. Prerequisite: consent of instructor.

06M:247 Directed Readings in Marketing-Ph.D.
arr.
Prerequisite: consent of instructor.

06M:250 Applied Marketing Research
3 s.h.
Research design, survey design, sampling, data analysis, qualitative research methods, research project management.
06M:251 Marketing Analytics  
Quantitative tools to support marketing planning decisions, including forecasting, elasticity analysis, conjoint analysis, and customer LTV; analysis of syndicated data.

06M:252 Strategic Brand Positioning  
Define market boundaries; use customer and competitor analyses to create sustainable market positions; create and manage brand identities; brand architecture, brand equity measurement.

06M:253 Product and Pricing Decisions  
Create and capture value through product and service design, including stage-gate evaluation models; implement pricing strategy for new products and existing product lines.

06M:254 Customer Analysis  
Use customer insights to support successful marketing programs; organizational, individual, and joint decision making; post sale satisfaction behaviors.

06M:255 Marketing Communication and Promotions  
Develop effective communication programs for business and consumer markets; manage agency relationships; integrate media/vehicle platforms; track and evaluate investments in communications and promotions.

06M:256 Managing Distribution Networks  
Select distribution channels, manage distributor relationships; category level competition and coordination; monitor distributor performance.

06M:290 Thesis in Marketing  
Prerequisite: consent of instructor.
Master of Business Administration Program

Associate dean: Jarjis Sa-Aadu
Assistant dean: Colleen Downie
Graduate degree: M.B.A.
Web site: http://www.biz.uiowa.edu/mba

The Henry B. Tippie School of Management offers a Master of Business Administration (M.B.A.) program that provides students with a foundation for future growth and flexibility in professional management. The program, which is fully accredited by AACSB International—the Association to Advance Collegiate Schools of Business, enables students to build broad-based professional portfolios of analytical skills, knowledge, leadership, and applied experiences. The curriculum is rigorous, yet learning takes place in a collaborative environment that builds teamwork skills and encourages independent problem solving.

Students in Tippie M.B.A. programs come from every region of the United States and from countries worldwide. They represent a variety of backgrounds, undergraduate majors, and professional experience. The curriculum is designed for college graduates in any field; previous business course work is not required. However, full-time work experience is required for admission. Contact the Tippie School of Management for a brochure listing complete program requirements.

Students in the full-time M.B.A. program may enroll in one of several joint degree programs, simultaneously earning an M.B.A. and a University of Iowa graduate or professional degree in another discipline. See "Joint Degree Programs" below.

Full-time M.B.A.

The full-time M.B.A. program requires 66 s.h. of graduate credit, including 32 s.h. taken by all full-time M.B.A. students and 34 s.h. of career academy and elective course work. Students complete business foundation (core) courses during their first semester in the program (fall) and take advanced core courses, career academy courses, and electives in the remaining three semesters. M.B.A. students must take 06N:201 Professional and Leadership Development (PDL) each semester of the program; the course provides in-class and out-of-class training and experience in career advancement, leadership assessment and development, and academy-specific skill-building activities. A weeklong international immersion in January of the second year strengthens students' knowledge of global business.

The program's career academies are the framework through which students become experts in a specific business field. Each career academy provides a unique set of curricular offerings as well as academic and professional experiences that include industry projects, interactions with the business community and with alumni, and skill-building activities designed to increase each student's marketability. In their second semester (spring), students choose one of the following career academies and concentration tracks based on their career goals.

Finance career academy (choice of two concentration tracks: corporate finance, or investment management)
Marketing career academy (one concentration track: managing customers, products, and brands)
Strategic innovation career academy (choice of two concentration tracks: process excellence, or strategic management of innovation)

The full-time M.B.A. study plan is as follows.

First Semester

06N:201 Professional and Leadership Development (PDL) 1 s.h.
06N:204 Corporate Communications 2 s.h.
06N:211 Marketing Management 2 s.h.
06N:212 Management in Organizations 2 s.h.
06N:215 Corporate Financial Reporting 2 s.h.
06N:216 Data and Decisions 2 s.h.
06N:225 Managerial Finance 2 s.h.
06N:229 Operations Management 2 s.h.

Second Semester

06N:201 Professional and Leadership Development (PDL) 2 s.h.
06N:228 International Economic Environment of the Firm 2 s.h.
06N:245 Strategic Business Consulting 3 s.h.
Academy courses/electives/project management primer 13 s.h.
Admission

Applicants to the M.B.A. program must submit a complete application file, including the following:

- A completed Tippie School of Management application form and fee;
- Official transcripts of all undergraduate and graduate course work, which must be submitted to the Office of Admissions by each institution attended;
- Official Graduate Management Admission Test (GMAT) scores;
- The completed supplemental application form with essay responses, a résumé, and a cover letter;
- Three completed recommendation forms.

Applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). In place of TOEFL, the program accepts International English Testing System (IELTS) scores.

For TOEFL registration information, contact the University of Iowa Office of Admissions.

The full-time M.B.A. program admits students only for fall entry. Application deadlines are as follows:

- International applicants: April 15
- U.S. citizens and permanent residents (priority deadline): April 15
- U.S. citizens and permanent residents: July 30

Applications received after April 15 are considered on a space-available basis.

Accelerated Professional Track

Highly qualified undergraduate students in the University of Iowa College of Liberal Arts and Sciences, the College of Engineering, or the Tippie College of Business may be admitted to the full-time M.B.A. program's Accelerated Professional Track (APT). These students begin taking M.B.A. core courses as electives during their undergraduate programs, which permits them to earn a bachelor's degree and an M.B.A. more quickly than they would if they pursued each degree separately. APT students must complete an internship in the program.

To enter the APT program, students must complete 90 s.h. of undergraduate work, have a g.p.a. of at least 3.50, have clearly defined career goals, and indicate their intent to pursue both degree programs on a full-time basis. Students also must have a professional background similar to that of students enrolled in the M.B.A. program.

Joint Degree Programs

Joint degree programs allow students to pursue two degrees simultaneously, earning both more quickly than they would if they pursued each degree separately. The Tippie School of Management collaborates with several other University of Iowa academic units to offer joint professional or graduate degrees: an M.B.A./J.D. with the College of Law; an M.B.A./M.D. with the Carver College of Medicine; an M.B.A./M.S.N. with the College of Nursing; and an M.B.A./M.H.A. with the College of Public Health.

Separate application to each degree program is required. Applicants must be admitted to both programs before they may be admitted to the joint degree program.

M.B.A. for Professionals and Managers

The M.B.A. for Professionals and Managers (M.B.A.-PM) program requires 45 s.h. of graduate credit. The program is tailored for working professionals building on the synergies of working and concurrent learning. It prepares graduates
to be more effective leaders in the global marketplace. The curriculum is designed for students with varied backgrounds, undergraduate majors, and professional experience. Previous course work in business is not required.

Courses are offered each semester during evening hours or weekends in Cedar Rapids at the college’s Cedar Rapids Center; in Des Moines at the W.A. Krause Center for Entrepreneurial Education and the Pappajohn Education Center; and in the Quad Cities at the Kahl Educational Center. M.B.A.-PM students also may enroll in full-time M.B.A. courses in Iowa City when space is available.

The M.B.A.-PM program requirements include a business core of nine courses, which develops competency in general management skills and key functional business areas, and six business electives. The elective courses contribute to the development of an area of expertise and foster a deeper understanding of management and business practices; they are offered in marketing, finance, and management, with a smaller number offered in management information systems/operations management, accounting, and entrepreneurship. Some students earn the degree in as few as two years, but they may have up to 10 years to complete it. Most earn the M.B.A. in three years, taking two courses each fall and each spring semester and one course during the summer. Course sequencing is flexible. A sample study plan follows.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:211</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>06N:212</td>
<td>Management in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3</td>
</tr>
<tr>
<td>06N:216</td>
<td>Data and Decisions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Business elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:213</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>06N:229</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Two business electives</td>
<td>6</td>
</tr>
</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:223</td>
<td>Global Business Strategy</td>
<td>3</td>
</tr>
<tr>
<td>06N:240</td>
<td>Strategic Management and Policy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Three business electives</td>
<td>12</td>
</tr>
</tbody>
</table>

**Admission**

The M.B.A.-PM program admits students for fall or spring entry; applications are accepted throughout the year. Admission decisions are based on the quality of work experience, undergraduate grade-point average, GMAT score, letters of reference, and completed application materials. Applicants should have at least two years of postbaccalaureate professional work experience before admission.

Admitted applicants who have met the priority application deadline may request registration for classes on the first date of registration. The University must receive GMAT scores by the following application deadlines.

- **Priority deadline for fall semester (August): May 1**
- **General deadline for fall semester (August): June 30**
- **Priority deadline for spring semester (January): October 1**
- **General deadline for spring semester (January): December 1**

**Enrollment in Courses Before Formal Admission**

Individuals who have not yet been admitted to the program but have been granted special pre-M.B.A.-PM status may enroll in a maximum of three M.B.A.-PM courses over 12 months. One of the three courses must be 06N:215 Corporate Financial Reporting or 06N:216 Data and Decisions. Credit is applied to the degree once the applicant is admitted to the program. Individuals who request their first registration in an M.B.A. course must first submit their résumé and transcript to the Tippie School of Management for approval. To be considered for pre-M.B.A.-PM status, applicants should have at least one and one-half years of postbaccalaureate professional work experience.

**Executive M.B.A.**

The Executive M.B.A. requires 50 s.h. of graduate credit. Admission is limited to experienced executives who want to
broaden their management skills without interrupting their professional careers. Applicants should have at least 10 years of postgraduate managerial experience. Previous academic work in business is not required.

Course work is presented over 21 months. The program begins in mid-August with a five-day residency in Iowa City, followed by classes one day each week on alternating Fridays and Saturdays. A second five-day residency is held at the beginning of the second year. Students complete 16 core courses and an international business seminar (7-10 days during spring semester of the second year). Each entering class progresses through the program as a group.

Classes for the Executive Engineer Dual Master's Degree program are held at the Cedar Rapids Area Education and Conference Center. Classes for the Iowa City Executive M.B.A. program are held on the Iowa City campus in the Pomerantz Center. The Tippie School of Management also offers International Executive M.B.A. programs in Hong Kong and in Italy.

The Executive M.B.A. study plan is as follows.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>06J:227</td>
<td>Human Resource Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:211</td>
<td>Marketing Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:212</td>
<td>Management in Organizations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:213</td>
<td>Managerial Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:216</td>
<td>Data and Decisions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:228</td>
<td>International Economic Environment of the Firm</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:230</td>
<td>Seminar in Strategic Management I</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:235</td>
<td>Strategic Cost Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:245</td>
<td>Financial Information and Capital Markets</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:215</td>
<td>Corporate Investment and Financing Decisions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06J:256</td>
<td>Dynamics of Negotiations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06M:205</td>
<td>Web Business Strategy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:229</td>
<td>Operations Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:231</td>
<td>Seminar in Strategic Management II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:235</td>
<td>Seminar in International Business</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>06N:240</td>
<td>Strategic Management and Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**International Executive M.B.A. (Hong Kong)**

The International Executive M.B.A. program in Hong Kong requires 45 s.h. of graduate credit. The program is designed for working professionals with at least three years of full-time work experience. Students enroll in classes sequentially. Most complete the program in 18-21 months, but some may complete it in as little as one year. Each class begins with two weeks of online course work and two consecutive weekends of classes in Hong Kong, and concludes with an additional two weeks of online course work. Faculty from Iowa travel to Hong Kong to teach the weekend classes. The program admits students for fall or spring semester entry.

The International Executive M.B.A. (Hong Kong) study plan is as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>S.H.</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:211</td>
<td>Marketing Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:212</td>
<td>Management in Organizations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:213</td>
<td>Managerial Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:216</td>
<td>Data and Decisions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:228</td>
<td>International Economic Environment of the Firm</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:229</td>
<td>Operations Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:240</td>
<td>Strategic Management and Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Business electives 18 s.h.
International Executive M.B.A. (Italy)

The International Executive M.B.A. program in Italy requires 48 s.h. of graduate credit. The one-year program is held primarily at the Consortium Institute of Management and Business Analysis (CIMBA) campus in Asolo, Italy, but the final course is completed on the University of Iowa campus in Iowa City. The program focuses on strategic management, consulting, and international business and includes two consulting projects with international companies. Students earn certificates in Kepner-Tregoe problem solving and a Six-Sigma Green Belt certificate in addition to the M.B.A. degree. The program's faculty is drawn from The University of Iowa and from institutions across the United States and Europe.

The program admits students only for fall semester entry. Applicants must have at least two years of full-time work experience.

The International Executive M.B.A. (Italy) study plan is as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:199</td>
<td>M.B.A. Competitive Prep</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>06N:211</td>
<td>Marketing Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:212</td>
<td>Management in Organizations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:213</td>
<td>Managerial Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:235</td>
<td>Strategic Cost Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:216</td>
<td>Data and Decisions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:217</td>
<td>Data and Decisions II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06T:220</td>
<td>Entrepreneurship and Innovation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:228</td>
<td>International Economic Environment of the Firm</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>06N:229</td>
<td>Operations Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:292</td>
<td>Supply Chain Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:240</td>
<td>Strategic Management and Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

Master of Business Administration Program Courses

See the course lists for individual departments for descriptions of M.B.A. electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:000</td>
<td>M.B.A. Internship</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: consent of Tippie School of Management.</td>
<td></td>
</tr>
<tr>
<td>06N:199</td>
<td>M.B.A. Competitive Prep</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Professional development, career strategies for successful competition in the M.B.A. marketplace. Prerequisite: consent of M.B.A. program associate.</td>
<td></td>
</tr>
<tr>
<td>06N:200</td>
<td>Directed Readings-M.B.A.</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisite: consent of associate dean for graduate programs.</td>
<td></td>
</tr>
<tr>
<td>06N:201</td>
<td>Professional and Leadership Development (PDL)</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Seminars, projects to enhance skill development, marketability, knowledge, experience for competitive business world; identification of opportunities, obstacles relevant to career goals, design of action plan to achieve goals.</td>
<td></td>
</tr>
<tr>
<td>06N:202</td>
<td>M.B.A. Case Competition</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Students represent Tippie School of Management in a case competition; internal case work, presentation and case analysis training. Prerequisite: M.B.A. student standing.</td>
<td></td>
</tr>
<tr>
<td>06N:203</td>
<td>Application in Organizational Leadership</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Opportunity to develop leadership skills necessary for managing student organizations; class discussion, workshops, guest speakers; for M.B.A. organization treasurers and presidents.</td>
<td></td>
</tr>
<tr>
<td>06N:204</td>
<td>Corporate Communications</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Effective communication to become a successful business professional and leader; strengthen ability to speak and write confidently, competently, and effectively, regardless of venue; varied team and individual presentation coaching, applied exercises.</td>
<td></td>
</tr>
</tbody>
</table>
06N:211 Marketing Management
Concepts, principles, models of marketing management; focus on strategic planning, management decision making, and implementation of marketing programs.

06N:212 Management in Organizations
How to explain, predict, and influence behavior in organizations; decision making, leadership, communication, group skills in management positions; motivation, leadership, teams, organizational culture, organizational design, individual differences, organizational change.

06N:213 Managerial Economics
Models of consumer and firm behavior with applications; market equilibrium and structure; pricing decisions.

06N:215 Corporate Financial Reporting
Contemporary financial reporting practices in the United States; how alternative accounting treatments affect the usefulness of financial information in applied decision settings.

06N:216 Data and Decisions
Quantitative modeling techniques and statistical analysis for management decision making; use of Excel for spreadsheet analysis; decision analysis, statistical inference, regression, linear programming, probability.

06N:217 Ethics

06N:223 Global Business Strategy
Strategic frameworks and skills critical for success in the global marketplace; content of an economic environment; cultural, ethical, and legal issues in the conduct of international business; how companies enter foreign markets and grow international subsidiaries, succeed in mergers and acquisitions, cooperate in joint ventures and strategic alliances. Prerequisite: 06N:212.

06N:225 Managerial Finance
Time value of money, applications of present value techniques; stock and bond valuation, capital budgeting, cost of capital calculation, portfolio formation and efficient market analysis, financial statement analysis, pro forma analysis, hedging financial risks. Pre- or corequisite: 06N:215.

06N:228 International Economic Environment of the Firm
Basic determinants of aggregate output, employment, wages, unemployment, consumption, investment, international trade flows, interest rates, exchange rates, prices and inflation in open economies; sources and nature of economic growth; effects of domestic and foreign monetary, fiscal policies; effects of trade, exchange rate policies. Prerequisite: 06N:213 or consent of instructor.

06N:229 Operations Management
Planning and decision-making activities for managing an organization's operations; trade-offs associated with operations management decisions, tools and techniques for helping operations managers implement decisions and reach goals; production and service delivery strategy, capacity planning, product and process design, total quality management, demand management, production and service planning, scheduling, materials control, emerging production and service technologies. Prerequisite: 06N:216.

06N:230 Seminar in Strategic Management I
Introduction to strategic management; the role of marketing, operations, and finance in strategic planning; case studies.

06N:231 Seminar in Strategic Management II
Strategic management integrating all aspects of business; computer simulation, lectures, case studies, readings.

06N:235 Seminar in International Business
Issues and challenges facing organizations doing business in international markets; social, economic, political factors, business policies and customs in the global environment; may include travel, study abroad. Repeatable. Prerequisite: M.B.A. enrollment.
06N:240 Strategic Management and Policy
Firm's competitive strategy from a manager’s perspective; key strategic frameworks; integration of concepts learned throughout M.B.A. program, previous work experience. Prerequisites: 06N:211, 06N:215, 06N:225, and 06N:229.

06N:241 Business Integration
Student teams run an operational business simulation, conduct organizational/industry analysis, assess market opportunities, define strategic direction, compete for company profitability and market share. Prerequisites: 06N:211, 06N:215, 06N:225, 06N:229, and 06N:240.

06N:245 Strategic Business Consulting
Plan, schedule, and deliver strategic consulting services to commercial enterprises; project definition, preparation and presentation of deliverables, client relationship management.
The Department of Finance and the Emmett J. Vaughan Institute of Risk Management and Insurance offer the Certificate in Risk Management and Insurance. The certificate program is open to University of Iowa undergraduate students.

Certificate in Risk Management and Insurance

The Certificate in Risk Management and Insurance requires 24 s.h. The program is designed to provide an understanding of the many aspects of risk management and insurance. It concentrates on value creation and asset protection, including pure insurance and risk management, as well as on corporate and financial risk management. It also addresses the financial and economic characteristics of potential exposures to loss that business organizations and individuals face, and the techniques available for hedging the risks and minimizing the costs associated with these exposures.

The certificate provides students in business and in other majors with a foundation for careers in corporate risk management, risk management consulting, employee benefits management and insurance consulting, insurance brokerage, and underwriting. It also may be of value to students seeking professional designations, such as Chartered Life Underwriters (CLU) and Chartered Property and Casualty Underwriter (CPCU).

The certificate requires the following courses. Students may take 06F:100 Introductory Financial Management and 06F:102 Principles of Risk Management and Insurance in the same semester; they are prerequisites for all RMI courses.

**CORE COURSES AND COREQUISITES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06F:100</td>
<td>Introductory Financial Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:102</td>
<td>Principles of Risk Management and Insurance (RMI core)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:104</td>
<td>Corporate and Financial Risk Management (RMI core)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**ELECTIVES**

All students choose two of these (6 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06F:103</td>
<td>Property and Liability Insurance (offered spring)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:105</td>
<td>Life and Health Insurance (offered fall)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:106</td>
<td>Employee Benefit Plans (offered spring)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Finance majors choose three of these (9 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06F:113</td>
<td>Fixed Income Securities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:114</td>
<td>Commercial Banking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:116</td>
<td>Futures and Options</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:126</td>
<td>Real Estate Process</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06J:156</td>
<td>Dynamics of Negotiations (available after early registration)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06J:162</td>
<td>Leadership and Personal Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06M:139</td>
<td>Sales Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:030</td>
<td>Statistical Methods and Computing</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Non-finance majors choose three of these (9 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:120</td>
<td>Financial Accounting and Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:111</td>
<td>Investment Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:113</td>
<td>Fixed Income Securities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:114</td>
<td>Commercial Banking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:116</td>
<td>Futures and Options</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06F:117</td>
<td>Corporate Finance</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Admission

Admission to the Certificate in Risk Management and Insurance program requires enrollment in an undergraduate degree program; junior standing; a cumulative g.p.a. of at least 2.75; 06F:102 Principles of Risk Management and Insurance and its corequisite, 06F:100 Introductory Financial Management with a grade of B-minus or higher; completion of 06F:110 Financial Information Technology and all prerequisites; and a grade of C or higher in all other RMI courses.

Courses for Noncertificate Students

B.B.A. students majoring in finance can concentrate in risk management and insurance (RMI), or they can supplement their corporate finance and investment courses with one or more RMI courses. Other University of Iowa students, including those enrolled in other Tippie College of Business majors, can take RMI courses to enhance their understanding of related financial services or learn about employment opportunities in the industry.

College of Liberal Arts and Sciences students pursuing a B.A. or B.S. in mathematics, program C, take RMI courses as part of the major when they elect risk management and insurance as their area of application. Students in the Department of Statistics and Actuarial Science can take RMI courses to help prepare for their actuarial exams.

Affiliated Courses

The Department of Finance offers five courses affiliated with the Emmett J. Vaughan Institute of Risk Management and Insurance that are included in the Certificate in Risk Management and Insurance curriculum. See Finance in the Catalog for course descriptions and prerequisites.

06F:102 Principles of Risk Management and Insurance 3 s.h.
06F:103 Property and Liability Insurance 3 s.h.
06F:104 Corporate and Financial Risk Management 3 s.h.
06F:105 Life and Health Insurance 3 s.h.
06F:106 Employee Benefit Plans 3 s.h.
The College of Dentistry is an integral part of The University of Iowa and its health sciences campus. Its mission, which embraces the University's academic values as well as the ethical responsibilities implicit in educating future members of a profession, rests on a foundation representing every aspect of collegiate activity: education of students as general practitioners and specialists; research into all aspects of oral and dental disease and the delivery of health care; and service to the community, the state, and the profession.

Faculty members, D.D.S. students, and specialty residents provide oral health care to patients at clinics in the Dental Science Building, the Center for Disabilities and Development, and dentistry clinics at University of Iowa Hospitals and Clinics and Iowa City Veterans Affairs Medical Center. Faculty, staff, and students participate in interdisciplinary research and training activities involving the University's five health science colleges as well as other University colleges and departments.

Dentistry at The University of Iowa began in 1882 as a single department. In 1900 the University underwent general reorganization and the Dental Department became the College of Dentistry. Today the college is Iowa's only provider of dental education and ranks as a leader in dental education nationwide.

The college and its educational programs are accredited by the Commission on Dental Accreditation of the American Dental Association, an independent tripartite commission authorized and recognized by the Commission on Post-Secondary Education.

Programs offered by the college cover the full spectrum of dentistry and closely integrated fields. They include the Bachelor of Science in oral health science, a degree completion program for individuals holding an A.A.S. degree in dental hygiene; the Doctor of Dental Surgery program (D.D.S.), which prepares general dentists; advanced education programs in all dental specialties, each of which may lead to certification in a dental specialty; several advanced education programs in other areas of dentistry, including the oral science program, which offers M.S. and Ph.D. degrees; post-D.D.S. residency programs in general dentistry and hospital-based dentistry; and a wide variety of continuing education programs for dental and allied professions.

Professional Program (D.D.S.)

Doctor of Dental Surgery

The Doctor of Dental Surgery (D.D.S.) requires a minimum of three years of preprofessional study and four years of study in the College of Dentistry.

Course work during the first and second years in the College of Dentistry integrates the biomedical sciences with preclinical and clinical disciplines. The biomedical sciences include gross anatomy, biochemistry, general histology, microbiology, pathology, pharmacology, and physiology. Students also study topics specific to dentistry, such as principles of occlusion, anesthesia and pain control, operative dentistry, periodontics, prosthodontics, cariology, and preventive dentistry. During the latter part of the first year, students are introduced to their first clinical patient-treatment situation.

Second-year dental students continue their study of biomedical sciences, take preclinical courses, have additional patient treatment experiences in restorative and preventive dentistry, and are introduced to esthetic and implant dentistry.

Third-year dental students rotate through a series of clerkships that expose them to seven clinical disciplines.

Fourth-year dental students deliver comprehensive dental care in conditions that closely approximate those in private dental practice. They also are exposed to varied community dentistry health programs throughout Iowa and other states that include hospitals, nursing homes, and the Special Care Clinic. They may choose to participate in the Colorado Migrant Worker Program, the Indian Health Service Program, or the Foreign Dental School Exchange Program. The community dentistry programs provide exposure to facets of dentistry usually not observable in an academic setting.

Biomedical Sciences in the Dental Curriculum

The following science courses are offered by University of Iowa departments outside the College of Dentistry and are a
required part of the D.D.S. curriculum.

060:101 Human Gross Anatomy for Dental Students 6 s.h.
060:112 General Histology for Dental Students 4 s.h.
061:113 Dental Microbiology 3 s.h.
069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
071:111 Pharmacology for Dental Students 5 s.h.
072:152 Human Physiology for Dental Students 4 s.h.
099:161 Biochemistry for Dental Students 4 s.h.

College of Dentistry nondepartmental courses are listed under "Nondepartmental Courses" at the end of this section. Courses offered by the college's departments are listed in each department's General Catalog section.

Combined Bachelor's Degree/D.D.S.

Students who are enrolled in a baccalaureate program at The University of Iowa may be allowed to use course work from their first year of dentistry to complete their elective semester-hour requirement toward the bachelor's degree.

The provision for acceptance by the College of Liberal Arts and Sciences of 30 s.h. of elective credit earned in any other college of the University allows College of Dentistry students to obtain a bachelor's degree from the College of Liberal Arts and Sciences after successfully completing the first year of dentistry. To take advantage of this plan, students must fulfill all specific requirements for the bachelor's degree, including the General Education Program requirements and the requirements for a major. Students also must satisfy the College of Liberal Arts and Sciences residence requirement before enrolling in the College of Dentistry. Contact the College of Liberal Arts and Sciences for more information.

Academic Rules and Procedures

Promotions, Graduation

Student promotions and graduation are determined by the collegiate academic and professional performance committee, which is made up of individuals appointed by the dean from the biomedical, preclinical, and clinical sciences and from other academic areas of the college. The performance committee may recommend to the dean that a student withdraw from the college or repeat specific courses when the student is deemed generally unprepared to be promoted or to enter the dental profession.

Committee for Appeals

When a student has been asked to withdraw from the college or wants special consideration of problems concerning promotion or graduation, he or she may appeal to the dean. All appeals are heard by an ad hoc committee appointed by the dean. The ad hoc committee investigates new information that has not been available previously or that has not been discussed as fully as the student feels it should have been. The committee determines whether this new information, or important new insights that may have been gained, could have influenced the collegiate academic and professional performance committee's decision. The recommendation of the appeals committee is submitted to the dean for final action.

Dentistry Licensure Examination

The State of Iowa accepts clinical examination results from the Central Regional Dental Testing Service and from the Western Regional Examination Board. Examinations are administered at several testing sites located at dentistry schools in the United States. A separate license application is then filed with the individual state board of dentistry.

For licensure, all states also require the National Boards, conducted by the American Dental Association. Many states, including Iowa, also require a jurisprudence examination.

Student Organizations

All dental students are members of the American Student Dental Association through its local chapter. The American Dental Education Association, the American Association of Dental Research (Student Research Group), the American Association of Women Dentists, the American Academy of Pediatric Dentistry Student Chapter, the American Society for Geriatric Dentistry, the Student National Dental Association, and the Hispanic Dental Association also have local chapters.

Students who rank in the upper 12 percent of their senior class are eligible for election to Omicron Kappa Upsilon, a national scholastic honorary dental society.
The national dental professional fraternities Delta Sigma Delta and Psi Omega have chapters at Iowa. Both fraternities provide academic and social activities for students and their spouses.

Expenses

The College of Dentistry maintains the Supply-Instrument Management System (SIMS), which provides students with instruments and supplies necessary throughout their dental training. The SIMS usage fee for the D.D.S. is payable in installments over the four-year program.

A fee for expendable laboratory supplies is charged each of the first two years. A $100 breakage fee also must be deposited; the deposit is refundable upon graduation or termination of enrollment.

Admission

Applicants must submit a completed AADSAS (Associated American Dental Schools Application Service) application form to the American Dental Education Association (ADEA). The AADSAS application must be completed online at the American Dental Education Association web site (http://www.adea.org).

Applications are accepted beginning June 1 of the year before the year of entry. Completed applications must be on file at ADEA by November 1. Applicants should apply as early as possible. Notifications of acceptance are sent beginning December 1.

Prospective dental students are encouraged to embark on an educational program that leads to a standard bachelor's degree. This ensures that students receive a well-rounded education.

Predental Studies

The basic academic requirement for admission to the College of Dentistry is completion of at least 90 s.h. of academic study at an accredited college. No more than 60 s.h. of credit is accepted from a junior college or two-year institution. The predental program of study should include the following.

**English:** satisfactory accomplishment in English composition, rhetoric, and speech commensurate with the academic requirements for a bachelor's degree at the college attended.

**Physics:** one year (equivalent to 8 s.h.), of which one-fourth must be laboratory work.

**Chemistry:** two years (equivalent to 16 s.h.), of which one year (equivalent to 8 s.h.) must be in organic chemistry; one-fourth of each year's study must be laboratory work.

**Biochemistry:** highly recommended.

**Biological science:** one year (equivalent to 8 s.h.), which must include appropriate laboratory work; the requirement may be satisfied by a one-year course in principles of biology, with instruction in cell biology, metabolism, organic biology, animal biology, genetics, development, ecology, and evolution. Preference is given to applicants who have completed more than 8 s.h. Courses in human anatomy and cell physiology are strongly recommended.

**Gross anatomy:** highly recommended.

**Electives:** sufficient course work in the social sciences, philosophy, psychology, history, foreign languages, business, and mathematics to provide a well-rounded educational background.

Grade-Point-Average Requirement

Applicants should have a cumulative g.p.a. of at least 3.25 on a 4.00 scale; a g.p.a. above 3.50 is preferred. The admissions committee gives special consideration to the quality of applicants' course work in the predental sciences, in addition to the cumulative grade-point average.

Interviews

Personal interviews are required of applicants for admission to the College of Dentistry. Applicants are contacted to arrange an interview, usually after the AADSAS application is received by the admissions office.

Required Dental Admission Test

All applicants must complete the Dental Admission Test (DAT) sponsored by the Council on Dental Education of the American Dental Association. A computerized DAT is available throughout the year at designated Prometric Centers.

Applicants should take the test by August 1, one year before entering dental school. Test application forms are available online (http://www.ada.org) and from the American Dental Association, 211 East Chicago Avenue, Chicago, IL 60611.

Deposit by Accepted Applicants
Applicants accepted before February 1 are required to submit a $500 deposit within 30 days after notification of admittance. Applicants admitted after February 1 must submit the deposit within two weeks after notification of admittance. This deposit is not refundable but is credited toward the first fee payment. Applicants who fail to make the deposit within the time specified forfeit their place in the entering class.

Additional Admission Considerations

Fulfillment of the specific requirements listed for admission does not ensure admission to the College of Dentistry. From applicants meeting minimum requirements, the admissions committee selects those who appear best qualified for the study and practice of dentistry. The committee considers applicants' academic averages, science averages, DAT scores, letters of recommendation, the interview, and other factors.

Early Admission

The College of Dentistry's Deferred Admit Program (DAP) allows academically motivated students who are residents of Iowa and are interested in a dental career to be admitted to the College of Dentistry as early as the end of their first year of undergraduate study. Students postpone matriculation to the College of Dentistry until they have earned the amount of credit required for their undergraduate degree. As undergraduates, they are engaged in a liberal arts and sciences curriculum that incorporates the dental prerequisite courses. Once selected for the program, students must maintain a specified level of academic achievement to assure matriculation to the College of Dentistry.

Financial Support

Financial assistance for dental students is based on need. Dental students who demonstrate need are eligible for Health Professions Loans, Perkins Loans, and Stafford/Ford Loans. Students applying for loans must submit the Free Application for Federal Student Aid (FAFSA). Interest on many of these loans may be deferred while the student is in school, and the loans are repayable over an extended period of time after the course of study is completed.

Short-term and long-term loans are available through the financial aid coordinator at the College of Dentistry. Academic awards are given each year to qualified entering dental students. The Academic Research and Resource Support Awards provide financial support up to $15,000 per year for as many as four years, if the student maintains an appropriate level of performance.

Financial assistance (grants and loans) is available to disadvantaged students who qualify under The University of Iowa's Educational Opportunity Program and the Opportunity at Iowa Program.

Information on financial assistance for dental students is available from the University's Office of Student Financial Aid.

Undergraduate Program

Bachelor of Science in Oral Health Science

The College of Dentistry's Bachelor of Science in oral health science is a degree completion program for students who hold an Associate in Applied Science (A.A.S.) from an accredited dental hygiene program.

Graduates of dental hygiene programs are allowed up to 60 s.h. of credit for their A.A.S. degree. Each applicant is evaluated, taking into consideration educational background and experience.

The flexible format, designed to accommodate the needs of returning adult students, provides for considerable individualization of the program of study.

Admission

Applicants must have a cumulative g.p.a. of at least 2.50 on a 4.00 scale. They must apply for admission to the University and to the B.S. program in oral health science, and they must interview at the College of Dentistry. Official transcripts, including degrees conferred, from each college or university attended must be submitted along with the application to the University's Office of Admissions.

For more information about the B.S. in oral health science, contact the University's Office of Admissions.

Graduate and Clinical Specialty Programs

Programs of study leading to the Master of Science are offered by the Departments of Operative Dentistry; Oral and Maxillofacial Surgery; Oral Pathology, Radiology, and Medicine; Orthodontics; and Preventive and Community Dentistry. In addition, the Departments of Endodontics, Periodontics, and Prosthodontics offer programs leading to graduate degrees in oral science. Admission to these graduate programs requires satisfaction of all requirements for admission to the Graduate College, the Doctor of Dental Surgery degree or its equivalent (or a bachelor's degree for
dental hygienists applying to the Department of Preventive and Community Dentistry), and departmental approval. For graduate program descriptions, see the appropriate College of Dentistry department sections of the Catalog.

Several departments also offer postgraduate programs designed as preparation for clinical specialty practice (Endodontics; Operative Dentistry; Oral Pathology, Radiology, and Medicine; Orthodontics; Pediatric Dentistry; Periodontics; and Prosthodontics). Students who complete these programs satisfactorily are awarded a certificate. The Department of Oral and Maxillofacial Surgery offers a four-year residency program.

For information about each graduate degree or certificate, see the College of Dentistry department sections of the Catalog.

Faculty

Iowa's dental faculty is predominantly full-time. In addition, more than 100 part-time adjunct faculty members assist with clinical teaching in the D.D.S. and advanced residency programs. Approximately 88 percent of the college's faculty members hold D.D.S. or D.M.D. degrees and 12 percent represent other disciplines. The vast majority of faculty dentists have advanced education past the D.D.S., generally with master's degrees in specialty areas; about one-fifth hold a Ph.D.

The College of Dentistry is committed to the principle that diversity is essential to a strong educational environment—one that prepares new generations of dentists to provide high-quality care to patients from many backgrounds. The college's full-time faculty reflects that commitment.

Facilities

The College of Dentistry is located in the Dental Science Building on the University of Iowa health sciences campus, in proximity to the Roy J. and Lucille A. Carver College of Medicine, College of Nursing, College of Pharmacy, College of Public Health, and University of Iowa Hospitals and Clinics. The Bowen Science Building and the Hardin Library for the Health Sciences also are nearby.

The south wing of the Dental Science Building is devoted to clinical teaching. There are 268 operatories in departmental clinics, student laboratories, clinical research space, and a cafeteria. The north wing houses the simulation clinic and technique bench teaching laboratory, the electronic classroom, college administrative offices, educational media service, computer support services, the academic Department of Preventive and Community Dentistry, and the research laboratories and faculty offices of the Dows Institute for Dental Research.

Dental Education and Patient Care

Patient care is integral to dental education. Students and faculty members deliver oral health care in clinics on the health sciences campus and at several off-campus sites, including nursing homes. More than 25,000 people receive oral health care yearly in the college's clinics. Patients from throughout Iowa as well as from western Illinois and northern Missouri account for most of the 125,000 patient visits each year.

Interdisciplinary Centers

Dows Institute for Dental Research

Established in 1976, the Dows Institute for Dental Research occupies the fourth floor of the Dental Science Building's north wing. Laboratories are equipped to support a wide variety of research projects reflecting the complex nature of modern health care needs. Research in the area focuses on soft tissue and oral cancer; cariology and microbiology; epidemiology, behavior, health policy, and outcomes; and biomaterials, bone, and tissue engineering. Research also is carried out at the Dental Clinical Research Center.

Although research is concentrated in these program areas, one of the unit's strengths has been the consistent level of interaction and collaboration among individuals and programs across the college and the University.

Dental Clinical Research Center

For nearly two decades, the Dental Clinical Research Center has offered the oral health care industry a multidisciplinary setting for product testing and development directed by experienced faculty scientists in laboratory or clinical settings. Center researchers have broad experience in designing tests of therapeutic claims and product safety that meet the criteria of the ADA's Council on Scientific Affairs and the Food and Drug Administration Clinical Trials.

Center for Oral and Maxillofacial Implants

Through integrated research, education, and clinical programs, the Center for Oral and Maxillofacial Implants facilitates
the development of implants and their use as a therapeutic modality in dentistry. The center integrates basic and
clinical research with technology transfer to the clinical setting, enhancing predoctoral, postgraduate, and continuing
education and expanding treatment options available to patients served by the college. The center also provides vital
coordination of dental specialties that participate in this treatment modality.

Nondepartmental Courses

112:100 Transfer Credits Accepted
arr.

112:118 Experiential Learning I
Problem-based learning, case studies, simulations, communication projects, small group seminars, ethics, research
and treatment planning activities integrating information addressed concurrently in the dental curriculum.
arr.

112:119 Experiential Learning II
Continuation of 112:118.
arr.

112:120 First-Year Continuing Session
arr.

112:145 Introduction to Geriatric Dentistry
Biological, psychological, social aspects of aging; normal aging, disease processes, pathological changes that affect
oral health treatment of dental diseases and patient management. Prerequisite: D.D.S. enrollment or completion of
dental hygiene program. Same as 153:145.
2 s.h.

112:150 Second-Year Continuing Session
arr.

112:155 Introduction to Comprehensive Care/Experiential Learning III
Comprehensive dental diagnosis and treatment planning; small group discussion of students' own patient cases.
1 s.h.

112:167 Introduction to Quality Assurance
Patient management, record writing skills, quality assurance concepts; students coordinate treatment, patient
relations, issues of quality assurance for a group of patients; ethical, moral dilemmas in relation to dental practice.
2 s.h.

112:168 Dental Therapeutics
Patients' medications and their implications for dental treatment; clinical use of medications that dentists may
prescribe; guidelines for dental prescribing.
1 s.h.

112:170 Third-Year Continuing Session
arr.

112:180 Fourth-Year Lectures and Clinics
arr.

112:185 Clinical Admissions Emergency
Clinical evaluation, diagnosis, and treatment of patients with dental emergencies; patient assessment and referral to
appropriate department for treatment.
1 s.h.

112:189 Advanced Topics in Quality Assurance
Quality assurance from viewpoint of practicing dentist, dental educator, dental epidemiologist, court system; analysis of
senior dental practice in relation to quality assurance criteria.
2 s.h.

112:190 Dental Student Research Honors Program
Experience in conducting research. Prerequisites: D.D.S. enrollment and consent of mentor and program director.
arr.

112:199 Advanced Clinical Comprehensive Dentistry
Clinical experience for professional improvement. Prerequisite: dental degree.
0 s.h.
Endodontics

Head: William T. Johnson
Professors: David R. Drake, William T. Johnson, Richard E. Walton
Professor emeritus: Arne M. Bjorndal
Associate professors: Bruce C. Justman, Anne E. Williamson
Clinical assistant professor: Manuel R. Gomez
Graduate degrees: M.S., Ph.D. in Oral Science
Graduate nondegree program: Certificate in Endodontics
Web site: http://www.dentistry.uiowa.edu

D.D.S. Student Training

Course work and clinical experiences in endodontics are of vital importance in the overall education of D.D.S. students.

Preclinical endodontics, taught during the sophomore year, includes a didactic and a laboratory component. In clinical endodontics, taught during the junior year, students study both normal and pathological conditions of the dental pulp and periapex. Diagnosis of pulpal and periradicular disease and various specialized aspects of endodontic treatment are emphasized. Students treat endodontic patients under direct supervision of faculty and staff.

Graduate and Clinical Specialty Programs

The Department of Endodontics offers programs leading to a Master of Science and a Doctor of Philosophy in oral science. It also offers the Certificate in Endodontics.

To learn about the Doctor of Philosophy, see Oral Science in the Catalog or contact the department.

The department's programs are designed to provide qualified dentists with the scientific knowledge and clinical skills they will need to practice endodontics and/or pursue a career in dental education and research.

The department offers several types of programs, which have similar clinical experiences but different didactic experiences. Each program satisfies training requirements for eligibility for certification by the American Board of Endodontics. Students who complete the programs are encouraged to seek board certification. Various activities throughout the courses of study prepare the candidates for the board examination process.

The goal of each program is to develop competent diagnosticians and clinicians. Students learn the scientific and clinical basis of endodontics; develop clinical skills; gain knowledge of and experience in the educational process in order to function confidently as dental educators; and develop skills in designing, conducting, reporting, and publishing the results of original research. Students in the M.S. and Ph.D. programs also gain in-depth knowledge in a scientific training discipline as preparation for an academic/research career.

Other graduate programs are available to endodontics students, such as master's degrees in other disciplines, or a certificate in combination with a Ph.D. in a basic science area. Such programs are available by special arrangement, depending on the candidate's experience and goals. Consult the Department of Endodontics for more information.

Master of Science and Certificate

The Master of Science in oral science requires a minimum of 30 s.h. of graduate credit, earned over 36 months. An original research project and thesis are required. Students follow a plan of study outlined by the Department of Endodontics in compliance with basic Graduate College regulations for graduate programs in dentistry. Following successful completion of the program requirements, students are granted an M.S. and the Certificate in Endodontics.

The Certificate in Endodontics requires a minimum of 24 months of full-time formal training. The program has the same clinical but fewer didactic course requirements than the combined M.S./certificate program, and it requires no formal thesis. Students are expected to complete an original research project in the area of endodontics and to write a scientific paper for submission to a refereed journal.

Students in the graduate and certificate programs must maintain a g.p.a. of at least 3.00 to receive the certificate and/or degree. Students who fall below this average are allowed one semester to raise their g.p.a. to at least 3.00. The circumstances of the grade-point average deficiency receive careful consideration.

Students accepted and enrolled in any graduate program or the certificate program are not permitted to involve themselves in private dental practice enterprises outside the college. Failure to adhere to this policy may result in dismissal from the program.

Whenever possible, students should complete the graduate and certificate programs without interruption. Students who demonstrate need to discontinue the program temporarily should limit their time away to a maximum of one calendar year. Students must have permission from the endodontic graduate program director in order to interrupt their study.
Admission

Applicants to the M.S. and certificate programs must be graduates of (or be graduating from) an accredited college of dentistry or a foreign equivalent. M.S. and Ph.D. applicants must meet the admission requirements of the Graduate College. A cumulative g.p.a. of at least 2.50 or equivalent is necessary for consideration for admission to any of the graduate programs.

All advanced programs begin on or before July 1. Applications should be submitted no later than September 1 of the year preceding the anticipated date of enrollment. Finalists for each program are asked for a personal interview in September or early October. Final decisions are made in November.

Application forms for the M.S. and certificate programs are available online on the Office of Admissions web site (http://www.uiowa.edu/admissions/graduate/colleges/graduate.htm).

Application forms for the Ph.D. program are available from and should be returned to the office of the associate dean for research and graduate studies in the College of Dentistry. Applications are forwarded to the Department of Endodontics.

Applications for all programs must include the completed application form, official transcripts from all undergraduate and graduate institutions attended, three letters of recommendation, National Board Examination Scores (at least Part I, and Part II if available), an updated curriculum vitae, a personal statement, and a recent photograph.

Applicants to the M.S. program are not required to take the Graduate Record Examination. International applicants whose first language is not English must present a satisfactory score on the Test of English as a Foreign Language (TOEFL).

Financial Support

Applicants to the M.S. and certificate programs must be able to support themselves financially until they complete the program. Prospective students should plan to pay living expenses, tuition, and costs for books, specialized equipment (e.g., surgical operating microscope, notebook computer, and ultrasonic system), instrument usage, and thesis expenses. Stipends are determined on a yearly basis and depend on availability of funding.

Endodontics Courses

For D.D.S. Students

**083:140 Endodontics Preclinical Didactic**

Basic principles, concepts, technical procedures for treatment of pulpal problems.

1 s.h.

**083:141 Endodontics Preclinical Laboratory**

Basic technical procedures for treatment of pulpal problems.

1 s.h.

**083:160 Clinical Endodontic Practice**

Clinical experience in diagnosis and treatment of routine pulpal and periradicular pathology; emergency diagnosis; treatment of patients.

arr.

**083:165 Clinical Endodontic Seminar**

Tooth pain, anesthesia, pulpal and periradicular reactions, endodontic radiologic interpretation, trauma diagnosis and treatment, surgical endodontics, endodontic implants, bleaching, retreatment, apexification/apexigenesis.

1 s.h.

For Graduate Students

Also see courses listed under the Oral Sciences Program.

**083:225 Endodontic Literature Review I**

Current and historical research.

2 s.h.

**083:226 Endodontic Literature Review II**

Continuation of 083:225.

2 s.h.

**083:227 Endodontic Literature Review III**

2 s.h.
Continuation of 083:226.

083:228 Endodontic Literature Review IV
Continuation of 083:227.

083:255 Practice Teaching in Endodontics

083:260 Current Literature in Endodontics
Current literature relevant to endodontics, including diagnosis or treatment of endodontic cases; dental journals with endodontic-related content; landmark research.

083:300 Endodontic Certificate Program
Advanced endodontic clinical and didactic education; nondegree program toward eligibility for board certification in endodontics.
Family Dentistry

Head: David C. Holmes
Professors: Ana M. Diaz-Arnold, John V. Doering, Marcos A. Vargas
Professors emeriti: Charles B. Sabiston Jr., Vincent D. Williams, Gene A. Zach
Associate professors: Larry J. Squire, Richard A. Williamson
Assistant professors: Cheryl L. Straub-Morarend, Michael L. Spector
Web site: http://www.dentistry.uiowa.edu

The Department of Family Dentistry reinforces and refines the comprehensive approach to managing patients' oral health care needs.

D.D.S. Student Training

The senior year of the D.D.S. program integrates basic science knowledge, clinical skills, and dental laboratory experiences acquired during the first three years of dental school into a systematic approach to providing patient care.

Students who complete their education in Family Dentistry should:

- conduct themselves in a professional and ethical manner;
- understand the principles of comprehensive dental treatment planning;
- know the medical, ethical, and legal issues involved in patient care;
- be able to recognize the need for specialty consultation;
- be competent in coordinating and sequencing patient treatments;
- be effective members of the dental team;
- be prepared to enter general practice;
- be educated and trained for licensure examination; and
- appreciate the importance and value of lifelong learning.

Students spend five days a week in a clinical setting, where they gain experience in total patient management and care. Their didactic course work builds on their previous education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients' needs are stressed.

The department's practice management curriculum prepares students to evaluate practice locations and manage the business aspects of a dental practice.

Family Dentistry Courses

114:184 Dental Practice Management 2 s.h.
Principles of dental practice management; delivery of comprehensive dental treatment in a simulated group-practice clinical setting, with chairside dental assistants.

114:187 Clinical Experiences-Comprehensive Care arr.
Clinical experiences in diagnosis, treatment planning, and delivery of integrated, comprehensive dental care.

114:188 Clinical Competencies-Comprehensive Care arr.
Refinement of clinical skills, judgment, and critical self-evaluation in the delivery of integrated, comprehensive dental care.

114:194 Topics in Family Dentistry 3 s.h.
Current techniques, findings; applications for general practitioner and graduate specialty programs.

114:195 Treatment Planning and Sequencing 2 s.h.
Documentation of diagnostic procedures used in developing a treatment plan and sequence for selected clinical patients; student presentations.
Hospital General Dentistry

Head: Kirk L. Fridrich  
Division directors: Kirk L. Fridrich (Oral and Maxillofacial Surgery), Robert L. Schneider (Prosthodontics)  
Professor: Robert L. Schneider  
Associate professor: Patricia K. Meredith  
Assistant professors: Mark A. Dittmer, Lance P. Forbes, Ryan M. Meyer, Terry P. Riley  
Visiting assistant professor: Ellen C. Morris  

The College of Dentistry operates a hospital dentistry clinical service at University of Iowa Hospitals and Clinics. The service includes divisions of general dentistry, maxillofacial prosthodontics, oral and maxillofacial surgery, and orthodontics and it interacts with the college's specialties of orthodontics, periodontics, pediatric dentistry, endodontics, diagnosis, oral pathology, and prosthodontics.

The Hospital Family Dentistry Program offers a one-year general practice residency.

Residency Program

The residency program in general dentistry prepares dentists for a broader scope of private practice in general dentistry. The program combines clinical and didactic training on an individual basis and meets fundamental requirements of the Commission on Dental Accreditation of the American Dental Association.

The residency covers one year of hospital-based training. Through postdoctoral clinical, didactic, and hospital experience, residents prepare to meet the oral health needs of a wide range of ambulatory and nonambulatory patients.

Residency training includes use of hospital resources, management of ambulatory patients, inpatients, same-day surgery patients, and emergency medical and dental patients. Residents participate in consultations with other hospital services and are assigned to appropriate hospital services to fulfill the objectives of the training program. They are appointed to the hospital's house staff and have the same privileges and responsibilities as residents in other professional education programs.

Applicants must be graduates of an accredited college of dentistry and must be eligible to be licensed to practice dentistry in the United States. Applications should be submitted to General Dentistry, Hospital Dentistry. The application deadline is October 1 for admission the following July 1.
Operative Dentistry

Head: Gerald Denehy
Professors: Gerald Denehy, Satish Khera
Professors emeriti: Murray Bouschlicher, James Fuller, Devore Killip
Adjunct professor: Robert Margeas
Associate professors: Steve Armstrong, Deborah Cobb
Associate professors emeriti: Yvonne Chalkley, Thomas Schulein
Clinical associate professors: Cathia Bergeron, Sandra Guzmán-Armstrong
Assistant professors: Saulo Geraldeli, Justine Kolker
Adjunct assistant professors: Stephanie Barquist, Terry Donnelly, Richard Grunder, Jon Ryder, Jeremy Tu
Clinical associate professor: Marcela Hernández
Adjunct instructors: Ed Fung, Lynn Griebahn, Alan Swett, Chadwin Wagener
Graduate degree: M.S. in Operative Dentistry
Graduate nondegree program: Certificate in Operative Dentistry
Web site: http://www.dentistry.uiowa.edu/

D.D.S. Student Training

Course work and clinical experiences in operative dentistry are fundamental to the overall education of D.D.S. students. The operative dentistry curriculum is designed so that didactic material relates closely to laboratory and clinical experiences. The program prepares students to proceed independently in operative dentistry during their fourth year of training.

Graduate and Clinical Specialty Programs

The Department of Operative Dentistry offers a Master of Science in operative dentistry and the Certificate in Operative Dentistry. The programs provide advanced training designed to prepare dentists for teaching, research, and practice. Since the American Dental Association does not recognize operative dentistry as a specialty area, graduate students have the opportunity to take courses that particularly interest them. Students earn a Master of Science and a Certificate in Operative Dentistry.

Requirements for the M.S. include satisfactory completion of 52 s.h. of graduate-level courses, preparation of an acceptable thesis based on original research, and a formal thesis defense.

Students must provide their own financial support for the graduate program, including research and thesis expenses.

Applicants to the program must be graduates of recognized schools of dentistry and must meet the admission requirements of the Graduate College. The department may request an interview with an applicant.

Operative Dentistry Courses

For D.D.S. Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>082:120</td>
<td>Dental Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Basic dental terminology and nomenclature, human tooth morphology, creation of tooth crowns with wax.</td>
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<tr>
<td>082:122</td>
<td>Operative Dentistry I</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>Principles, design of cavity preparations; placement of restorative materials; clinical simulation on dental mannequins.</td>
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<tr>
<td>082:140</td>
<td>Operative Dentistry II</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Principles, design of cavity preparations, restoration of teeth, patient management, pain control.</td>
<td></td>
</tr>
<tr>
<td>082:141</td>
<td>Operative Dentistry II Clinic</td>
<td>0-3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Procedures performed on operative clinic patients; based on biological principles for preparation of cavities, restoration with appropriate materials.</td>
<td></td>
</tr>
<tr>
<td>082:142</td>
<td>Esthetic Dentistry</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Principles of esthetic dentistry; tooth bleaching, tooth recontouring, esthetic buildups with composite resin; exercises on mannequins in the simulation clinic.</td>
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<tr>
<td>082:160</td>
<td>Operative Dentistry III Clinic</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Patient treatment; amalgam, composite resin, gold; emphasis on physiological, esthetic importance of restorative treatment.</td>
<td></td>
</tr>
<tr>
<td>082:165</td>
<td>Operative Dentistry III Seminar</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
Clinical problems, restorative dental materials, treatment methods.

For Graduate Students

**Discipline Studies**

082:224 **Graduate Restorative Materials**
Dental materials science: mechanical, physical, and chemical properties of restorative materials; selection and manipulation. Same as 084:224.

082:225 **Operative Dentistry Seminar I**
Basic concepts of cavity preparation, material placement.

082:226 **Operative Dentistry Seminar II**
Direct resin systems, bonding technology; their use in dental esthetic treatment.

082:227 **Operative Dentistry Seminar III**
Use of indirect techniques in bonded esthetic restorations.

082:228 **Operative Dentistry Seminar IV**
Principles for health professions educators.

**Research Program**

082:230 **Operative Dentistry Research I**
Thesis topic selection, committee selection, literature review.

082:231 **Operative Dentistry Research II**
Thesis protocol, research.

082:232 **Operative Dentistry Research III**
Thesis research, data gathering, writing.

082:233 **Operative Dentistry Research IV**
Thesis completion, defense.

082:234 **Selected Applications of Operative Dentistry**
Advanced techniques.

**Clinical Studies**

082:240 **Operative Dentistry Advanced Clinic I**
Materials, techniques; restoration procedures on a mannequin.

082:241 **Operative Dentistry Advanced Clinic II**
Patient treatment in operative clinic; basic operative procedures.

082:242 **Operative Dentistry Advanced Clinic III**
Patient treatment in operative clinic; direct-bonded esthetic restorative procedures.

082:243 **Operative Dentistry Advanced Clinic IV**
Patient treatment in operative clinic; advanced esthetic restorative procedures.

082:244 **Operative Dentistry Advanced Clinic V**
Patient treatment in operative clinic; advanced esthetic restorative procedures.

082:245 **Clinical Demonstrating**
Teaching undergraduate dental students in laboratory, clinic.
082:300 Operative Dentistry Certificate Program  0 s.h.
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in operative
dentistry.
Oral and Maxillofacial Surgery

Head: Kirk L. Fridrich
Assistant head: Richard G. Burton
Director, graduate studies: Teresa A. Morgan
Professors: Richard G. Burton, Kirk L. Fridrich, John Hellstein, Daniel Lew, Charles L. Ringgold
Professor emeritus: John Montgomery
Associate professors: Teresa A. Morgan, William J. Synan
Associate professor emeritus: Sherwood Wolfson
Graduate degree: M.S. in Oral and Maxillofacial Surgery

The Department of Oral and Maxillofacial Surgery combines clinical and didactic training to fit the individual interests, abilities, and development of students. Its predoctoral program is based in the College of Dentistry, with some clinical assignments in the oral and maxillofacial surgery division at University of Iowa Hospitals and Clinics. Graduate study is based primarily in the residency training program at University of Iowa Hospitals and Clinics.

D.D.S. Student Training

The professional curriculum is designed to develop a foundation of professional knowledge, coupled with surgical skills, that will enable D.D.S. students to diagnose and manage surgical problems related to general dentistry practice. The program emphasizes high ethical standards and development of good surgical concepts and judgment.

The clinical portion of the curriculum allows students to develop surgical skills and apply the theoretical knowledge acquired in didactic courses. Theory and application of anesthesia-analgesia, intravenous sedation, and nitrous oxide analgesia techniques are presented through didactic and clinical experiences.

Graduate and Clinical Specialty Programs

The department offers a Master of Science in oral and maxillofacial surgery and a residency program.

Master of Science

The Master of Science in oral and maxillofacial surgery requires four years of integrated didactic and clinical study, including a research project and preparation of a thesis. Students complete M.S. requirements during residency; see Residency Program below. Applicants must meet the admission requirements of the Graduate College.

Residency Program

The four-year residency program in oral and maxillofacial surgery combines clinical and didactic training to prepare dentists for specialty practice. Every effort is made to adapt the program to the individual interests, abilities, and development of students, but it is essential that all students meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Association of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been considered carefully in planning the structure and scope of training.

The residency period covers four years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of surgery principles, and familiarization with varied aspects of health services.

Competence in clinical oral and maxillofacial surgery requires knowledge of the basic medical sciences related to the specialty. So in addition to hospital and clinical training, residents take advanced course work in subjects such as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology. They also review closely related disciplines such as roentgenology, anesthesia, physical diagnosis, and laboratory procedures.

The assumption of increased responsibility and the opportunity for clinical and operating room experience are important aspects of residency training.

Residents gain clinical training in anesthesiology through an assigned rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology take on greater clinical significance, and increased responsibility in the operating room as first assistant and surgeon further develops surgical judgment and skills.

Development and implementation of a research project under staff supervision enhance the value of the residency training.

Senior residents may be given responsibility for major oral and maxillofacial surgical cases during rotations at University of Iowa Hospitals and Clinics and at the Iowa City Veterans Affairs Medical Center. Each fourth-year
resident is assigned to a rotation as a clinical and didactic coordinator and assumes responsibility to qualify for examination by the American Board of Oral and Maxillofacial Surgery.

**Admission**

Students begin the four-year program only on July 1. Applicants are selected through a post-D.D.S. dental matching program sponsored by the American Association of Oral and Maxillofacial Surgeons. The application deadline for the match in oral and maxillofacial surgery is September 1 for admission the following July. Appointments are made after the match results are revealed and the staff elects to take official action. Appointments are offered on or before February 1 for the following July.

Applicants must have graduated from an accredited college of dentistry, should be in the upper one-fourth of their graduating class, and must be eligible to be licensed to practice dentistry in the United States.

**Facilities**

The University of Iowa Health Sciences Campus has outstanding basic and clinical science departments that stimulate and support scholarly research and superior clinical practice. Appropriate environments for residency training in oral and maxillofacial surgery are provided by University of Iowa Hospitals and Clinics, the College of Dentistry, the Roy J. and Lucille A. Carver College of Medicine, and the Iowa City Veterans Affairs Medical Center.

**Oral and Maxillofacial Surgery Courses**

**For D.D.S. Students**

**087:115 Anesthesia and Pain Control I**
Principles, techniques of complete medical history, head and neck examination, cardiovascular and respiratory examination; neuroanatomical, psychophysiological aspects of pain; pharmacologic action and techniques for using local anesthetics.

**087:130 Basic Oral and Maxillofacial Surgery**
Principles; indications, contraindications for extractions; evaluation of patient's related medical history; techniques of extraction, minor oral surgery procedures.

**087:145 Anesthesia and Pain Control II**
Theory, application, instrumentation of nitrous oxide sedation; emphasis on cardiovascular, respiratory physiology; evaluation of patients, practical techniques for nitrous oxide sedation.

**087:155 Advanced Oral and Maxillofacial Surgery**
History, examination, diagnosis, treatment of diseases and traumatic injuries of oral cavity.

**087:160 Clinical Oral and Maxillofacial Surgery**
Clinical experience at the College of Dentistry, University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.

**For Graduate Students**

**087:201 Hospital Procedures**
Hospital rules, regulations; patient, department records; information concerning hospitalized patients.

**087:202 Basic Science Review**
Head, neck anatomy; dissection; microbiology, pathology, physiology.

**087:207 Surgical Anatomy**
Head, neck structures in major oral surgery procedures; emphasis on maxillofacial problems, surgical emergencies; may include animal surgery.

**087:208 Pain and Anxiety Control**
Nitrous oxide; intravenous, oral, intramuscular anxiety and pain control; pharmacology of agents; complications, their management.
087:209 Principles of Anesthesia
General anesthesia; agents and their effects on respiratory, cardiovascular systems; literature.

087:211 Literature Seminars and Journal Club
1 s.h.

087:212 Surgical Case Reports
1 s.h.

087:214 Roentgen Interpretation
Theory, technique.

087:215 Physical Diagnosis
2 s.h.

087:218 Oral Pathology Conference
Current clinical specimens.

087:225 Oral and Maxillofacial Surgery Seminar I
1 s.h.

087:226 Oral and Maxillofacial Surgery Seminar II
1 s.h.

087:227 Oral and Maxillofacial Surgery Seminar III
1 s.h.

087:230 Oral and Maxillofacial Surgery Research I
Thesis topic and review committee selection, literature review.

087:231 Oral and Maxillofacial Surgery Research II
Thesis protocol, research.

087:232 Oral and Maxillofacial Surgery Research III
Thesis research complete; data gathering.

087:233 Oral and Maxillofacial Surgery Thesis
Thesis and defense; comprehensive examination.

087:240 Clinical Oral and Maxillofacial Surgery I
Specialty and technical seminars, patient treatment; clinical practice on assigned patient problems.

087:241 Clinical Oral and Maxillofacial Surgery II
Specialty and technical seminars, patient treatment; clinical practice on assigned patient problems.
Oral Pathology, Radiology, and Medicine

Head: Steven D. Vincent
Professors: Michael W. Finkelstein, Axel Ruprecht, Christopher A. Squier, Steven D. Vincent, Philip W. Wertz
Professors emeriti: Harold L. Hammond, William J. Hausler, Daniel L. Hall
Adjunct professors: Eva Dahm, Thomas P. Williams
Clinical professor: John W. Hellstein
Associate professor: Karen A. Baker
Associate professors (clinical): Ronald D. Elvers, Cindy L. Marek, Carrie McKnight, Patricia K. Meredith
Assistant professors emeriti: George C. Kienzle, Francis H. Sippy
Assistant professors (clinical): Ruth D. Spieler, Sherry R. Timmons
Adjunct assistant professors: Joanna L. Clancy, Stephanie E. Cooper, R. Christine Gonzalez, Carolyn P. Larsen, John A. Maxwell, Daniel S. Sarasin
Graduate degree: M.S. in Stomatology
Graduate nondegree programs: Certificate in Oral and Maxillofacial Pathology, Certificate in Oral and Maxillofacial Radiology
Web site: http://www.dentistry.uiowa.edu

D.D.S. Student Training

The department teaches D.D.S. and other health care students about diseases that manifest in and about the oral cavity. Students learn about the clinical, radiographic, laboratory, histopathologic, and therapeutic features of these diseases as well as their etiology and natural history. They also study identification of systemic diseases through physical evaluation of patients.

Graduate and Clinical Specialty Programs

The department offers a Master of Science in stomatology with two tracks: oral and maxillofacial pathology, and oral and maxillofacial radiology. It also offers the Certificate in Oral and Maxillofacial Pathology and the Certificate in Oral and Maxillofacial Radiology.

Stomatology is the science of structure, function, and disease of the oral cavity. Study methods include examination of related histories, evaluation of clinical signs and symptoms, and use of biochemical, microscopic, and radiologic procedures to establish a diagnosis and plan for therapeutic management.

The department's programs are diverse and flexible, allowing students to obtain advanced clinical, didactic, and research-related education while pursuing a Master of Science.

Students also may choose to apply for acceptance to the College of Dentistry graduate programs in oral science (see Oral Science in the Catalog).

Master of Science and Certificates

The Master of Science in stomatology requires a minimum of 30 s.h. of graduate credit. Students choose one of two tracks--oral and maxillofacial pathology, or oral and maxillofacial radiology.

Students also may pursue a joint program, earning a Master of Science in stomatology and a certificate in their M.S. track area (Certificate in Oral and Maxillofacial Pathology, or Certificate in Oral and Maxillofacial Radiology). Each joint program combines the minimum requirements of the M.S. and the certificate; completion time usually is 36 to 48 months. The educational requirements of each certificate program meet the requirements for preparation of dental specialists set by the Commission on Dental Education of the American Dental Association and the American Board of Oral and Maxillofacial Pathology.

All graduate students in stomatology pursue comprehensive study of basic biologic and health sciences in preparation for teaching and research. They must complete the courses listed below, including the core courses and the basic science and departmental courses listed for their M.S. track. They also must prepare and submit a thesis based on the results of research conducted during their course of study.

CORE COURSES

068:199 Basic Otolaryngologic Science  arr.
069:205 Medical Pathology I  5 s.h.
069:206 Medical Pathology II  5 s.h.
086:200 Stomatology Literature Review  arr.
086:226 Physical, Laboratory, and Historical Features of Disease  arr.
086:230 Research in Oral Pathology, Radiology, and Medicine  arr.
111:202 Research Protocol Seminar  2 s.h.
111:212 Statistical Methods for Dental Research  3 s.h.
151:210 Dental Sciences Research Methodology  2 s.h.
Admission

Applicants must have successfully completed an accredited program leading to the D.D.S. or D.M.D., or a foreign equivalent, and must meet the admission requirements of the Graduate College. They must have a cumulative g.p.a. of at least 3.00 (or foreign equivalent) to be considered for admission.

All applicants must take the Graduate Record Examination (GRE) General Test. International applicants whose first language is not English must present a satisfactory score on the Test of English as a Foreign Language (TOEFL).

The department’s faculty makes final decisions on acceptance of applicants who meet the requirements for admission. A personal interview is required.

Facilities

Facilities reserved for the Department of Oral Pathology, Radiology, and Medicine include a radiology special procedures area, an interpretation room, seminar rooms, a surgical oral pathology laboratory, and a clinical pathology laboratory.

In addition, the College of Dentistry has joint-use research laboratories that are well equipped and staffed for conducting research involving histology, histochemistry, materials technology, radiobiology, ultrastructure, and electron probe analysis and quantification.

Oral Pathology, Radiology, and Medicine Courses

For D.D.S. Students

086:120 Fundamentals of Oral Radiology 1 s.h.
Methods of clinical, radiographic examination, record keeping; correlation of basic, clinical sciences.

086:135 Oral Pathology 4 s.h.
Diseases involving orofacial organs.

086:145 Introduction to Clinical Oral Radiology 1 s.h.
Principles, techniques of diagnosis, radiology, clinical pathology in clinical practice.

086:155 Systemic Disease Manifestations 1 s.h.
Clinical medicine for dental students; basic information for patient evaluation.

086:160 Clinical Oral Diagnosis 1 s.h.
Diagnosis of orofacial diseases by clinical, laboratory, radiographic and treatment planning methods; clinical case analysis.
086:161 Clinical Oral Radiology
Making and processing intraoral, extraoral radiographs; principles of radiographic interpretation.

086:165 Clinical Oral Pathology
Oral and maxillofacial diseases: integration of the clinical, historical, radiographic features; therapeutic management.

For Graduate Students

086:200 Stomatology Literature Review
Current literature in oral and maxillofacial pathology and radiology; presentation of graduate student research; development of lectures or seminars for D.D.S. or graduate students, or continuing education for peers and practicing dentists.

086:225 Manifestations of Oral and Paraoral Disease
Clinical experience in diagnosing, managing patients.

086:226 Physical, Laboratory, and Historical Features of Disease
Head and neck diseases, abnormalities.

086:227 Surgical Oral Pathology
Experience in day-to-day operations of surgical oral pathology laboratory; advanced training in histopathologic diagnosis of oral and maxillofacial diseases. Repeatable. Prerequisite: consent of instructor.

086:228 Introduction to Surgical Oral Pathology
Day-to-day operations of surgical oral pathology laboratory; histopathologic diagnosis of oral and maxillofacial diseases. Repeatable. Prerequisite: consent of instructor.

086:230 Research in Oral Pathology, Radiology, and Medicine
Includes thesis preparation.

086:238 Introduction to Histopathology
Case studies; histopathologic diagnosis of diseases that affect oral and maxillofacial region. Repeatable. Prerequisite: consent of instructor.

086:240 Histopathology
Case studies; advanced training in histopathologic diagnosis of diseases that affect oral and maxillofacial region. Repeatable. Prerequisite: consent of instructor. Pre- or corequisite: 089:202.

086:241 Hospital Oral Pathology, Radiology, and Medicine
Management of patient consultations, diagnosis, therapy at a hospital-based dental service.

086:242 Clinical Oral and Maxillofacial Radiology
Radiologic manifestations of diseases; emphasis on craniofacial complex.

086:243 Practical Oral and Maxillofacial Radiology
Clinic participation; supervision of dental and dental hygiene students, review of their cases; participation in clinical radiology conferences, laboratory exercises.

086:244 Technical Oral and Maxillofacial Radiology
Experience with technical maintenance of darkroom, clinical equipment; troubleshooting under supervision of radiology staff.

086:245 Head and Neck Radiology
Hospital-based rotation in diagnostic radiology with participation in interpretation sessions; CT, MRI, nuclear medicine, ultrasound.
086:246 Craniofacial Radiology  
Hospital-based rotation in diagnostic radiology; exposure to interpretive sessions on ultrasound, CT, MRI, nuclear medicine.

086:256 Advanced Oral Pathology  
Diseases involving orofacial organs; emphasis on bibliographic research, biodynamic analysis of pathologic processes, diagnostic interpretation; content adapted to student interests. Prerequisite: consent of instructor.

086:300 Oral Pathology Certificate Program  
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial pathology.

086:301 Oral Radiology Certificate Program  
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in oral and maxillofacial radiology.
Oral Science

Director: Christopher Squier
Graduate degrees: M.S., Ph.D. in Oral Science
Web site: http://www.dentistry.uiowa.edu

Graduate Programs

The College of Dentistry offers programs of study leading to the Master of Science and the Doctor of Philosophy in oral science. The Departments of Endodontics, Periodontics, and Prosthodontics offer programs leading to graduate degrees in oral science; see their department sections in the Catalog for more information.

The M.S. and Ph.D. programs require that students complete courses from a core curriculum and conduct independent research leading to a thesis. They are intended to prepare graduates for careers in teaching and research.

Master of Science

The M.S. in oral science requires a minimum of 30 s.h. of graduate credit, including 21 s.h. of course work, 9 s.h. of independent research leading to a thesis, and a final examination. M.S. students must spend at least two years in full-time residence. Students also involved in a two-year advanced clinical program should complete the M.S. and certificate programs by the end of a third year of study.

Students pursuing the M.S. normally must be enrolled in a clinical training program offered by a College of Dentistry department.

Doctor of Philosophy

The Ph.D. in oral science requires a minimum of 72 s.h. of graduate credit including advanced course work and original research that culminates in successful defense of a dissertation. Students must pass a comprehensive examination, prepare and gain approval of a research prospectus, and complete and successfully defend a dissertation that describes the results of the research. Completion of the program usually requires at least four years of full-time study.

Admission

Applicants to the M.S. and Ph.D. programs must hold a dental degree and must meet the admission requirements of the Graduate College. They should have a cumulative g.p.a. of at least 3.00. Applicants whose first language is not English must score at least 550 (paper-based) or 213 (computer-based) on the Test of English as a Foreign Language (TOEFL); they also may be asked to take the Test of Spoken English.

Programs normally begin July 1 each year.

Applicants to the Ph.D. program are asked to submit a statement describing past research experience and current research interests, and stating how completion of the Ph.D. program fits their career goals.

A personal interview may be requested for either program.

Oral Science Courses

151:200 Seminars in Dental Research 1 s.h.

151:210 Dental Sciences Research Methodology 2 s.h.
Practical, experimental procedures in dental research; literature and design; writing of research protocols. Offered summer session.

151:215 Research Design in Dentistry 2 s.h.
Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs. Offered spring semester.

151:220 Pathophysiology of Skin and Oral Mucosa 2 s.h.
Biology of skin, oral mucosa; changes in behavior of the tissues in varied physiological, pathological conditions. Offered spring semesters of even years. Prerequisite: 151:210.

151:230 Pathophysiology of Salivary Glands and Saliva 2 s.h.
Innervation, structure, function of glands; their secretions in health and disease, their role in oral environment. Offered spring semesters of odd years. Prerequisite: 151:210.

151:240 Pathophysiology of the Pulp-Dentin Complex  
Biology of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisite: 151:210.

151:250 Current Concepts of Cariology  
Etiology of dental caries; pathogenesis, development of preventive measures. Offered spring semesters of odd years. Prerequisite: 151:210.

151:260 Bone and Tooth Support Structure and Implants  
Biology of bone and periodontal structures; biologic basis for therapeutic use of dental implants. Offered fall semesters of odd years.

151:275 Oral Microbiology and Immunology  
Principles of microbiology and immunology, aspects of microbial community development in the oral cavity, basic concepts of host/parasite interactions related to development of oral diseases; biological, immunological, and clinical manifestations induced by major oral pathogens. Offered spring semesters of odd years. Prerequisites: microbiology, biochemistry, and biology. Recommended: immunology.

151:280 Advanced Dental Therapeutics  
Antimicrobial, analgesic, related therapies; emphasis on drug/drug interactions, dental implications of chronic cardiovascular and central nervous system medications. Offered fall semesters.

151:600 Research in Oral Science  
Thesis research. Prerequisite: oral science M.S. or Ph.D. candidacy.

151:610 Independent Study  
Independent study supervised by a faculty mentor.
D.D.S. Student Training

The professional program in orthodontics prepares general practitioners of dentistry to competently recognize, diagnose, and treat limited malocclusions of the teeth.

Lecture courses guide D.D.S. students in learning basic concepts of dental and facial growth, as well as treatment-oriented subject matter. In a laboratory course, students take and evaluate diagnostic records and fabricate treatment appliances. The department supervises a program for clinical treatment of selected patients.

Graduate and Clinical Specialty Programs

The department offers a Master of Science in orthodontics and the Certificate in Orthodontics.

The graduate program in orthodontics educates competent individuals to practice orthodontics and dentofacial orthopedics. The program's objectives are to provide students with an in-depth education in biological and biomechanical principles related to orthodontics; to teach students to diagnose, plan, and deliver comprehensive orthodontic health care service; and to develop students' research and service skills.

Opportunities are available for research and independent study in the department, and there are special facilities for research in biomechanics and craniofacial growth. Interaction with other departments provides learning and research opportunities in surgical orthodontics, cleft lip and palate treatment, speech pathology, animal experimentation, and human growth.

Master of Science and Certificate

The Master of Science requires a minimum of 30 s.h. of graduate credit. Students must satisfactorily complete a thesis based on an original research project to qualify for an M.S. in addition to the Certificate in Orthodontics.

Satisfactory completion of 24 months of intensive study, including lecture courses, seminars, clinical practicum, and a research paper, qualifies students to receive the Certificate in Orthodontics.

Admission

Applicants must have a D.D.S. or equivalent and must meet the admission requirements of the Graduate College. Application deadline is September 1 for entry the following July 1. Applicants are required to come to the University for interviews with department faculty.

Orthodontics Courses

For D.D.S. Students

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>089:115</td>
<td>Growth and Development</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Normal human growth and development; emphasis on craniofacial region.</td>
<td></td>
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<tr>
<td>089:135</td>
<td>Orthodontic Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Limited care case diagnosis and treatment.</td>
<td></td>
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<tr>
<td>089:136</td>
<td>Orthodontic Treatment</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>From patient management to use of appliances for correcting some malocclusions in the general practitioner's office.</td>
<td></td>
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<tr>
<td>089:170</td>
<td>Orthodontic Clinic</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Experience in diagnosis, treatment planning implementation; work with patients who have malocclusions appropriate for treatment by undergraduate students; record taking; diagnosis and treatment; may include appointments during summer months.</td>
<td></td>
</tr>
</tbody>
</table>
For Graduate Students

089:200 Control Theory and Craniofacial Morphogenetic Systems
1 s.h.

089:201 Orthodontic Theory: Diagnosis and Treatment Plan
Diagnosis, treatment planning implementation.
2 s.h.

089:202 Diagnosis and Treatment Planning
Literature concerning orthodontic diagnosis; treatment of particular problems; case histories of patients treated in
graduate clinic.
2 s.h.

089:203 Advanced Orthodontic Technique
Skills for treatment of disfiguring malocclusions; use of edgewise biomechanical therapy; laboratory focus on typodont
exercises.
arr.

089:204 Biomechanics
arr.

089:205 Facial Growth
Theories, processes; use of accepted facial growth concepts in treatment of individuals with malocclusions during
active growth period.
1-2 s.h.

089:207 Case Analysis
Literature on diagnosis, treatment of mixed dentition patients; case histories of patients treated by serial extraction
procedure.
arr.

089:209 Orthodontic Practicum
Clinical practice.
arr.

089:210 Orthodontic Seminar
Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are
undergoing, or have completed orthodontic treatment.
arr.

089:211 Problems: Orthodontics
arr.

089:212 Research: Orthodontics
arr.

089:215 Orthodontic Journal Club
Current biological, technical publications.
arr.

089:216 Practice Management
Business management of orthodontic practice; solo practice, associateship, partnership, practice corporation.
arr.

089:217 Cephalometrics
Use of skull X-ray (lateral and/or postero-anterior) in formulating orthodontic diagnosis, treatment plans for
malocclusions; cephalometrics as a tool for craniofacial structure research.
arr.

089:220 Craniofacial Anatomy
Literature on anatomy, phylogeny, ontogenesis, physiology of craniofacial structures.
arr.

089:221 Surgical Orthodontic Seminar
Evaluation, discussion, criticism, defense of diagnostic and treatment approaches to orthodontic cases that need, are
undergoing, or have completed surgical-orthodontic treatment.
1 s.h.

089:300 Orthodontic Certificate Program
Clinical and didactic education toward eligibility for board certification in orthodontics.
0 s.h.

089:400 Dental Treatment of Maxillofacial Deformities
2 s.h.
089:401 Seminar: Maxillofacial Rehabilitation

1 s.h.
The Department of Pediatric Dentistry instructs D.D.S. and graduate students in the prevention and treatment of dental diseases in children. Instruction combines didactic, laboratory, and clinical experiences and gives special consideration to reviewing current literature and managing dental problems of children with special health care needs. It also emphasizes efficient treatment through proper use of dental auxiliary personnel and record management.

### D.D.S. Student Training

All second-year D.D.S. students participate in a one-semester lecture course that includes preclinical exercises in the Simulation Clinic. Third-year D.D.S. students participate in a clerkship, which includes a lecture course and a clinical course. During their fourth year, D.D.S. students treat patients in the department's outreach clinics.

### Clinical Specialty Program

The Department of Pediatric Dentistry offers the Certificate in Pediatric Dentistry. The program is accredited by the Commission on Dental Accreditation of the American Dental Association.

#### Certificate

The Certificate in Pediatric Dentistry is a two-year residency program that prepares students for certification by the American Board of Pediatric Dentistry. Certificate students are trained in all phases of pediatric dentistry and have career choices in practice, education, or research. Special emphasis is placed on development of leadership skills and strategies for serving vulnerable populations.

Approximately 50 percent of the graduate program is devoted to advanced clinical activity, 30 percent to didactic courses and practice teaching, and 20 percent to original research. The program includes a core of didactic, clinical, and research-oriented courses supplemented by electives determined by students’ individual interests. Development of a minor subject area is recommended.

Close associations with the Department of Pediatrics in the Roy J. and Lucille A. Carver College of Medicine, the Center for Disabilities and Development, and University of Iowa Hospitals and Clinics permit emphasis on oral rehabilitation under general anesthesia, instruction in physical diagnosis, and management of children with developmental disabilities.

#### Admission

Prospective students apply through the American Dental Education Association PASS program (http://www.adea.org/pass). Applicants must meet the admission requirements of the Graduate College.

#### Financial Support

Stipends for the two-year program are provided by federal sources.

#### Research Opportunities

Clinical and laboratory research projects have financial support from federal agencies and other sources. Major research areas include cariology, dental materials, dentistry for persons with special health care needs, growth and development, fluoride therapy, child behavior management, prevention, and access to care.

### Faculty

Faculty members hold numerous national and state offices, committee memberships, consultantships, and honors in...
professional organizations. They serve as reviewers for professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Ten of the department's faculty members are diplomates of the American Board of Pediatric Dentistry.

**Pediatric Dentistry Courses**

**For D.D.S. Students**

090:140 **Pediatric Dentistry Diagnosis and Treatment**
3 s.h.
Growth and development, behavior management, diagnostic-preventive-restorative techniques for pediatric patients.

090:160 **Clinical Pediatric Dentistry**
arr.
Comprehensive clinical management of pediatric patients.

090:165 **Clinical Seminar in Pediatric Dentistry**
1 s.h.
Patient management, case histories, treatment philosophies, issues in contemporary dentistry for children.

**For Graduate Students**

090:220 **Social, Cultural, and Public Health Issues in Pediatric Dentistry**
1 s.h.

090:300 **Pediatric Dentistry Certificate Program**
0 s.h.
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in pediatric dentistry.
D.D.S. Student Training

The professional periodontal program for D.D.S. students combines didactic, laboratory, and clinical experience and applies the biological concepts of periodontology to the comprehensive clinical management of patients who have periodontal diseases.

Graduate and Clinical Specialty Programs

The Department of Periodontics offers a program leading to a Master of Science in oral science. It also offers the Certificate in Periodontics. Students may pursue the M.S. in conjunction with the certificate.

Master of Science

The Master of Science in oral science requires a minimum of 30 s.h. of graduate credit and 36 months of full-time study, including satisfactory completion of required and elective courses, preparation and defense of an acceptable thesis based on original research, and satisfactory completion of comprehensive written and oral examinations.

Certificate

The Certificate in Periodontics requires 36 months of full-time study, including satisfactory completion of required and elective courses, satisfactory completion of comprehensive written and oral examinations, and an acceptable literature review or research paper. Opportunities are provided for experience in clinical and basic research.

The certificate program provides a sound foundation for the clinical practice of periodontics. It meets all requirements of the Commission on Dental Accreditation of the American Dental Association for advanced dental education programs in periodontics. It also meets eligibility requirements for certification by the American Board of Periodontology.

Admission

Applicants to graduate study in periodontics must have a D.D.S. or equivalent and must meet the admission requirements of the Graduate College. Applicants must take the National Dental Board Examination and must interview with the department.

Financial Support

Applicants must be financially prepared for uninterrupted studies.

Facilities

The department has 20 modern, well-equipped operatories devoted exclusively to periodontics. Hospital experience is available to students in the nearby University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center.

Research facilities include collegiate laboratories in histology, microscopy, biomaterials, quantitation, tissue culture, molecular biology and biochemistry, and microbiology, as well as animal facilities. Other facilities are available by arrangement with University of Iowa Hospitals and Clinics, Eckstein Medical Research Building, Medical Laboratories, and the Iowa City Veterans Affairs Medical Center.

Periodontics Courses
For D.D.S. Students

092:140 Periodontic Methods I  
Normal periodontium, gingivitis, periodontitis, diagnosis, prognosis, treatment planning.

092:141 Periodontic Methods II  
Initial phase of periodontal therapy, treatment of acute periodontal problems, overview of surgical procedures.

092:160 Periodontics  
Comprehensive clinical management of periodontal patients.

092:165 Periodontology  
Comprehensive concepts of periodontology, clinical management of patients.

For Graduate Students

092:207 Practice Teaching in Periodontics  
Experience in lecturing, directing seminars, clinical teaching.

092:208 Recent Advances in Periodontics  
arr.

092:212 Applied Oral Microbiology  
Microbiology applied to oral health problems.

092:225 Periodontology Literature Review I  
arr.

092:226 Periodontology Literature Review II  
arr.

092:227 Periodontology Literature Review III  
arr.

092:228 Periodontology Literature Review IV  
arr.

092:300 Periodontic Certificate Program  
Advanced dental clinical and didactic education; nondegree program toward eligibility for board certification in periodontics.
Preventive and Community Dentistry

Head: Daniel J. Caplan
Professors emeriti: Henrietta L. Logan, Nelson S. Logan
Adjunct professor: Rhys B. Jones
Associate professors: Marsha A. Cunningham, Teresa A. Marshall, Derek H. Willard
Associate professors emeriti: Howard M. Field, Hermine McLeran, Kay D. Mescher, Lawrence C. Peterson, Jamie Sharp, Roger Simpson
Clinical associate professor: Howard J. Cowen
Assistant professor: Michelle R. McQuistan
Adjunct assistant professors: Julie Eichenberger-Gilmore, Fang Qian
Clinical assistant professors: Erin Lacev-Spector, Marco Rouman, Helen Sharp
Adjunct lecturer: Betsy Momany
Graduate degree: M.S. in Dental Public Health
Web site: http://www.dentistry.uiowa.edu

D.D.S. Student Training

Programs in preventive, community, and geriatric dentistry are designed to increase D.D.S. students' awareness of preventive dental practices, aspects of dental practices affected by community factors, and care of compromised adult patients.

Community dentistry programs give students opportunities to interact with health care teams and the public in Iowa and worldwide. The department conducts off-site community programs statewide, nationwide, and worldwide. It also operates the Special Care Clinic, which is housed in the Dental Science Building.

Using the community dentistry programs as the classroom, D.D.S. students observe and participate in a variety of activities that nurture their awareness of the societal obligations they must assume in order to become effective practitioners.

Graduate Program

The Department of Preventive and Community Dentistry offers a Master of Science in dental public health.

Master of Science

The Master of Science in dental public health requires 40 s.h. of course work and is designed to be completed in two academic years of full-time study. It prepares dentists and dental hygienists to be specialists in dental public health. The program emphasizes research and requires a research project culminating in the completion and defense of a thesis. Successful dentist graduates meet the educational requirements for eligibility for the certifying examination of the American Board of Dental Public Health.

Applicants must meet the admission requirements of the Graduate College.

Preventive and Community Courses

For D.D.S. Students

111:116 Fundamentals of Clinical Dentistry 1 s.h.
Identification of health and disease in the mouth; practical methods of disease control, philosophy of preventive dentistry; patient assessment, clinical diagnosis.

111:117 Cariology and Preventive Therapies 2 s.h.
Multifactorial etiology of dental caries; support data for use of fluorides, sealants, antimicrobials, and plaque control mechanisms in prevention of caries. Prerequisite: 111:116.

111:118 Preventive Dentistry, Communication, and Patient Care 3 s.h.
Patient oral assessment, communication, patient management skills; preventive dentistry risk assessment, oral hygiene instruction for collegiate recall patients; skills in instrumentation for detection, removal of calculus deposits. Prerequisites: 111:116 and 111:117.

111:145 Clinical Preventive Dentistry 0-2 s.h.
Experience providing complete prophylaxis and preventive services for college patients; application of nutrition principles and communication skills in a clinic setting. Prerequisite: 111:118.

111:160 The Practice of Dentistry in the Community I 1-2 s.h.
Dental public health, history of dentistry, dental personnel, organized dentistry, professional issues, evaluation of scientific research.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>111:161</td>
<td>The Practice of Dentistry in the Community II</td>
<td>1-2 s.h.</td>
<td>Factors that affect the profession and practice of dentistry: legal and malpractice issues, supply and demand, types and practice organization, financing and quality of care.</td>
</tr>
<tr>
<td>111:185</td>
<td>Broadlawns Medical Center</td>
<td>arr.</td>
<td>Dental care to low-income patients in a metropolitan hospital-based clinic; community-related assignments; student team experience in Des Moines.</td>
</tr>
<tr>
<td>111:186</td>
<td>Colorado Migrant Program</td>
<td>arr.</td>
<td>Experience providing primary dental care and outreach services to a migrant population; broad understanding of needs, resources for migrant, low-socioeconomic populations.</td>
</tr>
<tr>
<td>111:187</td>
<td>Community Health Care: Davenport</td>
<td>arr.</td>
<td>Experience providing dental care at medical-dental ambulatory health care facility serving Scott County; community-related assignments.</td>
</tr>
<tr>
<td>111:188</td>
<td>St. Lukes-Dental Health Center</td>
<td>arr.</td>
<td>Experience providing clinical and outreach services for low-income children and adults with developmental disabilities at St. Luke's Hospital, Cedar Rapids; operative and behavioral dental problems, hospital protocol, special needs of low-socioeconomic clients.</td>
</tr>
<tr>
<td>111:189</td>
<td>Geriatrics and Special Needs Program</td>
<td>arr.</td>
<td>Experience in Special Care Clinic and Geriatric Mobile Dental Unit; comprehensive care for medically, physically, cognitively compromised adults, including frail elderly nursing home residents with portable equipment, other underserved populations.</td>
</tr>
<tr>
<td>111:191</td>
<td>Private Practice Preceptorship</td>
<td>arr.</td>
<td>Development of skills and knowledge necessary for day-to-day practice of dentistry; experience at selected preceptor sites in Iowa.</td>
</tr>
<tr>
<td>111:193</td>
<td>Veterans Administration Medical Center: Knoxville</td>
<td>arr.</td>
<td>Experience providing dental care to inpatient and outpatient veterans in a 400-bed neuropsychiatric and geriatric hospital; observation of other hospital departments, such as physical therapy, rehabilitative medicine, psychiatry.</td>
</tr>
<tr>
<td>111:194</td>
<td>Special Field Clinic</td>
<td>arr.</td>
<td>Extramural experiences developed according to student needs, extramural opportunities. Prerequisite: department approval.</td>
</tr>
<tr>
<td>111:196</td>
<td>Siouxland Community Health Center</td>
<td>arr.</td>
<td>Experience providing dental care at medical/dental ambulatory health care facility; community-related assignments.</td>
</tr>
</tbody>
</table>

For Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>111:201</td>
<td>Literature Review Methods: Dental Public Health</td>
<td>2 s.h.</td>
<td>Concepts and process of literature review, particularly in area of student’s interest.</td>
</tr>
<tr>
<td>111:203</td>
<td>Independent Study: Dental Public Health</td>
<td>arr.</td>
<td>Prerequisite: approval of faculty supervisor.</td>
</tr>
</tbody>
</table>
111:204 Principles of Oral Epidemiology
Retrospective, prospective, cohort study designs; validity and reliability; distribution and determinants of oral diseases--caries, periodontal diseases, oral cancer, malocclusion, fluorosis, HIV infection, tooth loss, edentulism.

111:205 Administration of Public Dental Programs
Application of general management concepts; practical aspects of planning, financing, staffing, implementing, operating, evaluating dental public health programs at federal, state, local levels.

111:206 Preventive Programs in Dental Public Health
Prevention, control methods for major dental conditions, primarily dental caries, periodontal diseases; clinical efficacy, cost-effectiveness; development of comprehensive preventive oral health plan for a community.

111:208 Field Experience in Dental Public Health
Arranged with public and voluntary health agencies according to students' and agencies' needs.

111:211 Thesis: Dental Public Health
Protocol preparation; data collection, analysis, organization; writing, defense of research.

111:212 Statistical Methods for Dental Research
Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, correlation and analysis of variance.

111:214 Dental Care Policy and Financing
Dental financing and policy issues: payment mechanisms for health care service providers, third-party prepayment plans, salaried and public-financed programs, Medicaid and Medicare programs, dental insurance systems, and care of the underserved.

111:215 Introduction to Statistical Computing
Use of statistical packages on a personal computer for data management and analysis.

111:217 Teaching Methods and Evaluation
Philosophies of dental education, teaching methodologies, evaluation; focus on learning to write educational objectives, writing and analyzing exam items.

111:218 Clinical Teaching Practicum: Preventive Dentistry
Teaching experience in preventive dentistry clinic setting with first-year dental students; outcomes focused on methods in clinical teaching, evaluation, and remediation.

111:230 Geriatric Care I
Aging in humans, with emphasis on oral cavity; issues and problems of oral health care in older adults.

111:231 Geriatric Care II
Issues and problems related to oral health care in older adults, especially the frail or functionally dependent.

111:300 Dental Public Health Certificate
Dental public health certificate. Prerequisite: D.P.H. M.S. Program participation.
Prosthodontics

Prosthodontics is the dentistry specialty involving crowns, fixed partial dentures (bridges), removable partial dentures, complete dentures, maxillofacial prostheses, and implant prostheses.

D.D.S. Student Training

Instruction in the Department of Prosthodontics provides D.D.S. students with the basic principles, practices, and concepts of prosthodontics required for the practice of general dentistry, through laboratory projects and treatment of patients with differing prosthodontic needs.

Graduate and Clinical Specialty Programs

The Department of Prosthodontics offers programs leading to a Master of Science and a Doctor of Philosophy in oral science. It also offers the Certificate in Prosthodontics. All students enroll in the certificate program and may choose to pursue a graduate degree as well.

Master of Science, Doctor of Philosophy

The Master of Science in oral science requires a minimum of 30 s.h. of graduate credit; the Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit. The programs prepare individuals for careers in dental education and research and for independent study and professional growth.

The graduate curriculum includes more courses in the biomedical sciences and research methodology than are required for the Certificate in Prosthodontics. Students must prepare and defend a thesis (M.S.) or dissertation (Ph.D.) based on original research. Facilities and support personnel for research are available through the college's Dows Institute for Dental Research. For more information, see Oral Science in the Catalog.

Certificate

The Certificate in Prosthodontics requires a minimum of 34 months of study. It prepares individuals for specialty clinical practice in the discipline. The curriculum includes didactic courses and clinical training in all of the disciplines that make up the broad specialty of prosthodontics, including implant prosthodontics, maxillofacial prosthetics, and treatment of temporomandibular disorders. Patient care is completed in close collaboration with the other dental specialties. Clinically related basic science instruction compliments the clinical curriculum.

The certificate program is accredited by the Commission on Dental Accreditation of the American Dental Association. Successful completion of the program satisfies the formal training requirement for eligibility for the American Board of Prosthodontics certification examination.

Admission

Applicants to the M.S., Ph.D., and certificate programs must meet the admission requirements of the Graduate College. They must hold a D.D.S. or a D.M.D. from a dental school accredited by the American Dental Association or an equivalent degree.

The certificate program begins around July 1 each year. Applications are accepted year-round; those received by September 1 are considered for admission the following July. A personal interview is required for qualified applicants.

Facilities

Most didactic, clinical, and laboratory instruction and patient treatment takes place in the Department of Prosthodontics, which is located in the Dental Science Building. The building also houses the Doctor of Dental Surgery
(D.D.S.) program, training programs in specialties recognized by the American Dental Association, and the Dows Institute for Dental Research.

The college and the department provide supporting technologies that include cone beam CT radiography, implant imaging software, laboratory CAD/CAM systems, laser surgery, clinical operating microscopes, and digital shade matching.

Advanced prosthodontic students spend time at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center, where they work closely with medical professionals in other disciplines to treat medically compromised prosthodontic patients and those who require maxillofacial rehabilitation.

### Prosthodontics Courses

#### For D.D.S. Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>084:122</td>
<td>Occlusion and Complete Dentures Lecture</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Basic principles and clinical application of occlusion; basic principles, clinical steps, and laboratory procedures necessary for fabrication of complete dentures.</td>
<td></td>
</tr>
<tr>
<td>084:123</td>
<td>Occlusion and Complete Dentures Lab</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Laboratory exercises illustrating the principles of occlusion; projects simulating the clinical and laboratory steps in complete denture fabrication.</td>
<td></td>
</tr>
<tr>
<td>084:140</td>
<td>Fixed Prosthodontic Lecture I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Basic biomechanical principles of fixed prosthodontics; metal, single-unit, multiple-unit fixed prostheses; diagnosis and treatment planning for the partially edentulous patient, including occlusion and esthetic concerns.</td>
<td></td>
</tr>
<tr>
<td>084:141</td>
<td>Fixed Prosthodontic Patient Simulation I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Laboratory exercises in fabrication of single-unit metal, provisional restorations; preparations for fabrication of a three-unit fixed partial denture.</td>
<td></td>
</tr>
<tr>
<td>084:142</td>
<td>Fixed Prosthodontics Lecture II and Removable Partial Denture Lecture</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Principles, clinical steps, materials, and laboratory procedures necessary for fixed and removable partial dentures; lecture format.</td>
<td></td>
</tr>
<tr>
<td>084:143</td>
<td>Fixed Prosthodontics Lab II and Removable Partial Denture Lab</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Participation in projects and seminars simulating the clinical and laboratory steps in fixed and removable partial denture fabrication.</td>
<td></td>
</tr>
<tr>
<td>084:146</td>
<td>Introduction to Implant Dentistry</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Fundamental principles of osseointegration, diagnosis and treatment planning, surgical and prosthodontic protocols, laboratory communications introduced through patient simulation.</td>
<td></td>
</tr>
<tr>
<td>084:160</td>
<td>Prosthodontic Clinic</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Experience supplemented by individual supervision, demonstration.</td>
<td></td>
</tr>
<tr>
<td>084:165</td>
<td>Prosthodontic Seminar</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Knowledge in biological, basic sciences and technique applied to clinical fixed and removable prosthodontics procedures.</td>
<td></td>
</tr>
</tbody>
</table>

#### For Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>084:220</td>
<td>Fixed Prosthodontics Literature Review I</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Fixed prosthodontic procedures; assigned readings, discussion of related research.</td>
<td></td>
</tr>
<tr>
<td>084:221</td>
<td>Fixed Prosthodontics Literature Review II</td>
<td>arr.</td>
</tr>
<tr>
<td></td>
<td>Porcelain-fused-to-metal and ceramic restorations, color science and esthetics; assigned readings, discussion of related research.</td>
<td></td>
</tr>
<tr>
<td>084:222</td>
<td>Implant Literature Review</td>
<td>arr.</td>
</tr>
</tbody>
</table>
Implant prosthodontics; assigned readings, discussion of related research.

**084:223 Occlusion Seminar**
Occlusion and the temporomandibular system; assigned readings and discussion of related research.  arr.

**084:224 Graduate Restorative Materials**
Dental materials science: mechanical, physical, and chemical properties of restorative materials; selection and manipulation. Same as 082:224.  2 s.h.

**084:225 Complete Denture Literature Review**
Complete denture prosthodontics; assigned readings, discussion of related research.  arr.

**084:226 RPD Literature Review**
Removable partial denture prosthodontics; assigned readings, discussion of related research.  arr.

**084:231 Thesis Preparation: Prosthodontics**
Thesis preparation, defense.  3 s.h.

**084:300 Prosthodontic Certificate Program**
Advanced dental clinical, didactic education; nondegree program toward eligibility for board certification in prosthodontics.  0 s.h.
The nation's first university-level professorial chair in education was established at The University of Iowa in 1872. The department became the School of Education in 1907; and the College of Education, structured largely as it is today, was founded in 1913. Since then, the college's growth has mirrored the growth of the University.

Over the years, College of Education faculty members have been leaders in a variety of educational fields. Particularly noteworthy have been their contributions in the fields of educational testing and measurement. These contributions helped lay the foundation for today's testing and measurement industry, making Iowa City one of the best-known centers for this educational specialty.

The college has four departments: Counseling, Rehabilitation, and Student Development; Educational Policy and Leadership Studies; Psychological and Quantitative Foundations; and Teaching and Learning.

Teacher Education Programs and Student Teaching

The College of Education at The University of Iowa offers two major teacher preparation programs based on baccalaureate degrees. Elementary education is a College of Liberal Arts and Sciences major leading to either a Bachelor of Arts or a Bachelor of Science degree. The secondary education programs combine a specific liberal arts and sciences academic major with teacher preparation course work leading to a Bachelor of Arts or a Bachelor of Science degree.

The college also provides numerous specialized elementary and secondary teaching endorsement programs.

Preparation for special education teaching is offered primarily at the graduate level. In addition, an undergraduate instructional strategist program is available for elementary education students admitted to this program.

Undergraduate students admitted to a Teacher Education Program (TEP) must complete all College of Liberal Arts and Sciences General Education Program requirements for the Bachelor of Arts or Bachelor of Science. The quantitative or formal reasoning component must be satisfied with a college-level mathematics course.

The Office of Teacher Education and Student Services provides information on Teacher Education Programs; offers assistance with admission, student field experiences, and teacher licensure/certification; and serves as a liaison with other University units and external agencies. For more information, visit the office's web site (http://www.education.uiowa.edu/tess).

Undergraduate Admission to TEPs

Undergraduate applicants to The University of Iowa who wish to become teachers indicate their interest in the elementary major or a specific secondary-level teaching endorsement program on their application for admission. This results in an "Elementary Interest" (7EP) or a "Secondary Interest" (7SP) notation on the student's official records. Application materials for Teacher Education Programs are available from the Office of Teacher Education and Student Services or on the office's web site.

Acceptance to a Teacher Education Program is prerequisite to registration for most College of Education undergraduate courses.

Application Deadlines

Application deadlines for all Teacher Education Programs are as follows.

Summer session and fall semester: March 15
Spring semester: October 15
Late applications: October 15

General Requirements
Admission to Teacher Education Programs is competitive. Admission requirements may vary by program area. Faculty members in each program area review and select students to be admitted to their program. In order to be considered for admission to a Teacher Education Program, an undergraduate student must satisfy the following requirements: admission to The University of Iowa; a minimum amount of credit for college-level work; a minimum grade-point average; minimum scores on a preadmissions test; and a preadmission volunteer field experience in a regular K-12 classroom setting. There may be additional requirements. Teacher Education Program applications materials and current minimum application requirements are available on the Office of Teacher Education and Student Services web site (http://www.education.uiowa.edu/tess).

Graduate and Postbaccalaureate Admission to TEPs

Students who have completed a baccalaureate degree may be admitted to a teacher preparation program as graduate students or as postbaccalaureate students with senior standing. They may apply to the Graduate College and state their objective as "certification only." In some programs they may apply for a master's degree objective, either a Master of Arts in Teaching (M.A.T), or in selected majors, a Master of Arts (M.A.).

Students who choose to pursue a graduate-level teacher preparation program must be eligible for admission to the Graduate College, which requires a g.p.a. of at least 3.00 on all previous college course work. They must submit an official Graduate Record Examination (GRE) General Test score report, with scores that meet the minimum score requirement. They also must submit a complete application to the Teacher Education Program through the University's Office of Admissions (http://www.uiowa.edu/admissions).

Students also may apply to the College of Liberal Arts and Sciences as postbaccalaureate students with senior standing. Students who choose this option must apply to the appropriate Teacher Education Program, following the undergraduate admissions procedure, and must meet the general requirements for undergraduate admission; see Undergraduate Admissions on the Office of Admissions web site (http://www.uiowa.edu/admissions).

Application deadlines for graduate students and postbaccalaureate students with senior standing are March 15 and October 15.

TEP Standards and Policies

Students in the Teacher Education Program must meet grade-point average requirements each semester. Students who do not meet the requirements are placed on probation; those who fail to meet the requirements in a successive semester may be removed from the Teacher Education Program or denied admission to student teaching. For more information on standards and policies, consult the Office of Teacher Education and Student Services.

Electronic Portfolio

Students in the Teacher Education Program document their achievement of professional standards on ePortfolio, a web-based program in which they collect instructional artifacts and performances assigned in all their courses. Students receive instruction on the ePortfolio requirement beginning with the required course 07E:102 Technology in the Classroom or 07S:102 Technology in the Classroom.

Student Teaching

The final phase of the Teacher Education Program is the professional semester, devoted to supervised student teaching and directed observation in a variety of situations. Faculty members, professional staff, and advanced graduate students who are experienced teachers serve as supervisors.

Periodic seminars provide for discussion and evaluation of student teachers' experiences. Transfer credit may not be used to satisfy the student teaching requirement.

To be admitted to the student teaching semester, students must submit a separate application to the Office of Teacher Education and Student Services in the College of Education. All course work in education, for the major, and for the degree must be completed before the student teaching semester. Applications are submitted during the calendar year before the student teaching semester. The deadline is November 15 for students planning to student teach the following fall semester and April 15 for students planning to student teach the following spring semester.

Admission to student teaching requires program area faculty approval as well as verification of satisfactory progress in meeting both College of Education professionalism standards and program area standards, which are set at the time of admission to the TEP. In some programs, standards are higher than the college's required g.p.a. of at least 2.70. Students should consult with their advisors regarding specific requirements for the program areas.

For more information, contact the Office of Student Field Experiences.

Waivers

Students who have completed courses that they wish to substitute for program requirements should consult with their
Urban Student Teaching

Students who want to advance their educational interests through student teaching in an urban setting may apply through the Office of Student Field Experiences. The urban districts include Clark County, Nevada (Las Vegas area); Chicago Public Schools; Adams County School Districts (Denver area); Aldine, Texas (Houston area); Rialto, California (Los Angeles area); and St. Louis Park, Minnesota (Minneapolis area). These options are open to all education majors who meet the requirements established for these student teaching sites. For more information about this and other programs, contact the Office of Student Field Experiences.

International Student Teaching

International student teaching experiences are available primarily through the Foundation for International Education. Sites include Australia; China; Costa Rica; England and Wales; India; Ireland; Kenya; New Zealand; Scotland; Russian Federation; and Spain.

Interested students must meet the regular requirements for student teaching and must have the approval of their advisor and the appropriate program coordinator. In most locations, students are assisted with housing by the on-site coordinator.

International assignments are for eight weeks. Students complete an eight-week assignment in a stateside placement followed by an eight-week assignment in an international placement. Secondary education students in some program areas (for instance, English education) are required to complete a full semester of student teaching in the United States before student teaching at an international site.

For more information about international student teaching opportunities, contact the Office of Teacher Education and Student Services.

Teacher Licensure/Certification

The Iowa Board of Educational Examiners issues teacher, support service, and administrator licenses on the recommendation of Iowa colleges and universities whose programs have been approved by the Iowa Department of Education. All University of Iowa preparation programs have Iowa Department of Education approval.

Licensure/certification requirements across the nation are subject to change. Students who plan to seek employment in a state other than Iowa should make every effort to be informed about current requirements in that state. Many states require some type of competency testing. Generally, students who apply out-of-state should first secure Iowa licensure.

To be recommended by The University of Iowa, applicants must complete all requirements of the appropriate approved program. A minimum of 20 s.h. of course work applied to meet program requirements must be earned at The University of Iowa. Fingerprinting is required for all new applicants for Iowa licensure; the State of Iowa has outlined specific procedures for the fingerprinting process.

A passing PRAXIS II score for the elementary content test is required for all students seeking elementary licensure in Iowa and for satisfaction of an approved Teacher Education Program. No test is currently required for secondary or K-12 Iowa licensure applicants.

The College of Education Office of Teacher Education and Student Services provides Iowa application forms, fingerprinting procedures, and licensure/certification assistance to all students completing approved programs offered by the college. It also provides assistance to individuals interested in adding endorsements to their Iowa license based on completion of State of Iowa minimum licensure requirements.

State of Iowa Requirements

All University of Iowa students seeking an Iowa teaching license must complete 07B:180 Human Relations for the Classroom Teacher (or an approved substitute) and 07U:100 Foundations of Special Education. All University of Iowa Teacher Education Programs require 07B:180 Human Relations for the Classroom Teacher and 07U:100 Foundations of Special Education. Human relations courses offered through community colleges are not accepted. In the State of Iowa, applicants must be at least 21 years old to be granted a teaching license. Applicants who have been found guilty of a felony are barred from receiving an Iowa teaching license. Appeals may be filed directly with the Iowa Board of Educational Examiners.

Undergraduate Programs

Honors in Education
The College of Education Honors Opportunity Program is open to sophomores, juniors, and seniors who have maintained a g.p.a. of at least 3.50. Students with lower grade-point averages who have demonstrated research potential also may be accepted based on the recommendations of faculty/staff members and the education honors advisor. Honors Opportunity Program students must take 07X:100 Honors Seminar in Education, 07X:101 Senior Honors Project, and complete five additional honors experiences. Successful completion of the program results in an honors designation on the diploma. The Honors Opportunities Program is housed in and is administered by the Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development.

Minors

The College of Education offers two minors for students who wish to be better informed about education: one in educational psychology and one in human relations. The minors may help support students' future career objectives and help students prepare to be better informed as parents, as taxpayers, or as future members of local boards of education. Contact the Office of Teacher Education and Student Services for more information about the minors.

Graduate Programs

Graduate study in the College of Education is guided by the policies of the Graduate College, with additional requirements set by College of Education faculty members. Graduate students in education register in the Graduate College and receive their degrees from that college. See the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

All College of Education Ph.D. programs require students to complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also require an additional minimum of 15 s.h. in qualitative and quantitative research course work, with at least 9 s.h. from one area (qualitative or quantitative) and 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college’s web site).

Degree Programs Offered

Graduate degree programs are available in the following areas of study.

COUNSELING, REHABILITATION, AND STUDENT DEVELOPMENT

M.A., Ph.D.
Counselor Education and Supervision: Ph.D.
Community/Rehabilitation Counseling: M.A.
Rehabilitation Counselor Education: Ph.D.
School Counseling: M.A.
Student Affairs Administration and Research: Ph.D. - merged with Higher Education as of Fall '09
Student Development in Postsecondary Education: M.A.

EDUCATIONAL POLICY AND LEADERSHIP STUDIES

M.A., Ed.S., Ph.D.
Educational Administration: M.A., Ed.S., Ph.D.
Higher Education: M.A., Ed.S., Ph.D.
School Curriculum and Assessment Policy, Ed.S.
Social Foundations of Education: M.A., Ph.D.
Special Education Administration: Ed.S.

PSYCHOLOGICAL AND QUANTITATIVE FOUNDATIONS

M.A., Ed.S., Ph.D.
Counseling Psychology: Ph.D.
Educational Measurement and Statistics: M.A., Ph.D.
Educational Psychology: M.A., Ph.D.
School Psychology: Ed.S., Ph.D.

TEACHING AND LEARNING

M.A., M.A.T., M.S., Ph.D.
Art Education: Ph.D.
Curriculum and Supervision: M.A., Ph.D.
Developmental Reading: M.A.
Elementary Education: M.A., Ph.D.
English Education: M.A.T., M.A.
Foreign Language Education: M.A.T., M.A.
Foreign Language and English as a Second Language: Ph.D.
Language, Literacy, and Culture: Ph.D.
Mathematics Education: M.A., Ph.D.
Science Education: M.S., M.A.T., Ph.D.
Social Studies Education: M.A., Ph.D.
Special Education: M.A., Ph.D.

**Master of Arts in Teaching**

The M.A.T. program is designed for academically superior liberal arts and sciences graduates who completed few or no professional education courses in their undergraduate program. It is a nonthesis program with requirements that range from 45 to 67 s.h. See Teaching and Learning in the Catalog.

The program leads to a master's degree and licensure as a secondary teacher in the fields of English, foreign languages, and science education. Admission to the program requires a g.p.a. of at least 3.00 in undergraduate course work. The program includes 18 s.h. of graduate course work in the student's teaching field. Students must complete a minimum of 20 s.h. of graduate work in education to satisfy licensure requirements.

A Master of Arts program with a secondary education major in social studies leads to initial teacher licensure. See "M.A. in Social Studies Education"/"Program B Requirements" in the Teaching and Learning section of the Catalog.

**Master of Arts**

The College of Education offers a Master of Arts. Some of the college's M.A. programs are offered with thesis as well as without thesis. Nonthesis programs usually provide more specialized course work than do thesis programs. Although a nonthesis program is not necessarily terminal, students who expect to continue their studies in a doctoral program are urged to select a thesis program in order to gain more experience in research procedures. Students who complete a nonthesis M.A. and are admitted to a Ph.D. program may be asked to submit evidence of writing and research skills to their advisor or department during the early part of their doctoral program. For information about programs that offer a thesis option, see the program descriptions under "Graduate Programs" in College of Education department sections of the Catalog.

Course work completed more than 10 years before the session in which the degree is to be conferred must be evaluated to determine how much credit may be accepted toward the degree requirements. Students must earn at least 24 s.h. in University of Iowa courses after formal admission to a master's degree.

**Master of Science**

Thesis programs are available for M.S. students in science education. The degree requirements are similar to those for a Master of Arts.

**Specialist in Education**

The Ed.S. is granted upon completion of a prescribed two-year postbaccalaureate program designed for students preparing for professional work in fields such as administration and supervision, and special services. Of the minimum 60 s.h. required for the degree, 28 s.h. must be in the specialization area; the rest may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report.

Other requirements for the Ed.S. are the same as for the master's degree, except that an Ed.S. requires students to complete 15 s.h. of resident work on campus in one 12-month period or in two summer sessions. Course work completed 10 years before the final examination must be evaluated to determine the amount of credit that may be accepted toward program requirements.

Not all programs offer an Ed.S. degree. For a list of programs and degrees offered, see "Graduate Programs" above.

**Doctor of Philosophy**

The Ph.D. is the most advanced academic degree. It is conferred upon students who have demonstrated superior scholarship and mastery of research skills in course work as well as in the preparation and defense of a dissertation.

**Professional Improvement**

Some students are admitted to professional improvement status in a College of Education department rather than to degree candidacy. This option is appropriate only for persons who wish to update their knowledge or who are temporarily undecided about career plans. Students should file a change of status stating a specific program objective.
Extramural Education

Through the Division of Continuing Education, selected College of Education courses are offered at off-campus sites and hours outside the traditional schedule. If taken after formal admission to a specific program, some of these courses may be applied to meet residency requirements for degrees.

Special regulations govern such course work. Students should obtain prior approval from their program advisor before registering in extramural courses. Students not regularly admitted to The University of Iowa also may register in extramural courses, but credit earned before admission does not count toward residency requirements.

Support Units and Resources

Belin-Blank Center for Gifted Education

The Connie Belin and Jacqueline N. Blank International Center for Gifted Education and Talent Development conducts research, training, and service in gifted education. It also gathers and disseminates information on the education of gifted students.

The center is located in the Blank Honors Center. Its programs and services include the Belin-Blank Fellowship Program in Gifted Education; the Honors Opportunity Program; Invent Iowa; the Henry B. and Jocelyn Wallace National Research Symposium on Talent Development; the Wallace Assessment and Counseling Clinic; practicum and internship experiences; course work in gifted education (including state endorsement); academic talent searches for students in grades 2-9; a number of precocious programs for gifted students in grades 2-12; and programs for international students. The center also administers the Iowa Online Advanced Placement Academy.

The Belin-Blank center administers two University-level student programs: the Iowa Talent Project, developed for minority students from gifted programs in Des Moines, Iowa; and the National Academy of Arts, Sciences, and Engineering, a highly selective early-entrance program for students who have completed their junior year in high school.

The center also provides practicum and internship experiences for undergraduate and graduate students and coordinates course work for the Iowa Talented and Gifted Endorsement.

The Belin-Blank center houses the Institute of Research and Policy on Acceleration (IRPA), which is dedicated to the study of curricular acceleration for academically talented children.

For more information, contact the Belin-Blank Center for Gifted Education and Talent Development or visit its web site (http://www.education.uiowa.edu/belinblank).

Center for Advanced Studies in Measurement and Assessment

The Center for Advanced Studies in Measurement and Assessment (CASMA) pursues interdisciplinary research initiatives that advance the methods and practice of educational measurement and assessment.

CASMA's aim is to be a premier interdisciplinary center that performs, promotes, fosters, and disseminates high-quality research in measurement and assessment. CASMA devotes considerable resources to development of open-source computer programs for equating scores on tests.

Every other year, CASMA co-sponsors a national conference on current challenges in educational testing. Periodically, the center's staff produces research reports that are available on CASMA's web site (http://www.education.uiowa.edu/casma). Recent reports have discussed topics in generalizability theory, institutional selectivity in undergraduate education, revolutions and evolutions in educational testing, decision consistency with complex assessments, and equating models.

Center for Evaluation and Assessment

The Center for Evaluation and Assessment conducts evaluations, research studies, and professional development initiatives. The center's mission is to promote the sound use of assessment results, provide high-quality services to clients, create effective training activities for graduate students, improve the quality of evaluation theory and practice, and contribute to research on program evaluation and assessment.

The center is a resource for the University of Iowa, school systems, other organizations in Iowa and nationwide, educational policy makers, and others who use assessments to make important decisions regarding individuals or organizations. Services provided by the center include consultation on evaluation and assessment design, data collection, and data analyses. The center also conducts program evaluations, research studies, applied measurement investigations, and metaevaluations.

Center activities include program and project evaluations in a broad range of areas. These include clinical and translational science; minority recruitment and retention; educational project and curriculum evaluation; professional
development; learning communities, especially in health care educational settings; delivery of social and human
services; postsecondary curriculum and professional training in engineering, technology, and health care; and the
impact of public policy on PK-12 education. The center also has developed and implemented professional
development programming related to the use of assessments in K-12 education.

Center for Research on Undergraduate Education

The Center for Research on Undergraduate Education (CRUE) is dedicated to the study of undergraduate education in
America, from how academic and social experiences affect students to the methods schools use to improve students'
chances for success in the classroom and beyond graduation. CRUE brings a methodologically balanced approach to
the study of undergraduate education.

Cooperating Schools Program

The Cooperating Schools Program (CSP) is a University-wide service that facilitates placement of research projects
and service-learning projects conducted by faculty, staff, and students in public schools throughout Iowa. The program
provides information to help researchers obtain permission to conduct research in Iowa schools. The Cooperating
Schools Program was instituted at the request of school administrators charged with the responsibility of approving
research projects in their schools.

Curriculum Resources Laboratory

The Curriculum Resources Laboratory provides a large collection of circulating classroom materials for students and
faculty members interested in early childhood, elementary, secondary, and special education. The collection includes
books for children and young adults, K-12 textbooks, curriculum guides and activity books, and nonprint materials such
as DVDs, CD-ROMs, CDs, games, pictures, kits, and manipulatives. Access to the online catalog is available at
http://www.education.uiowa.edu/crl.

Education Technology Center

The Education Technology Center (ETC) provides computer services to College of Education faculty, staff, and
students. The ETC offers technical assistance to faculty and staff and maintains all computers in the college. Students
use ETC lab facilities to work on assignments and to conduct research. The center maintains four student computer
labs, three of which are suitable for a classroom environment.

The Education Technology Center provides a variety of application software as well as internet and multimedia
production tools. Faculty and staff members and students may check out digital cameras, computer projectors,
wireless laptops, and other AV equipment. The ETC also provides assistive technologies for College of Education
students with disabilities.

The ETC's ePortfolio Support Center guides faculty and students on the creation of electronic portfolios. Center staff
members consult with the faculty on identifying and linking classroom work to adopted College of Education standards.
They also help students produce and upload compliant web-based ePortfolios.

The ETC partners with the University's Information Technology Services office to maintain a video lab facility used for
professional video production. ETC staff members help faculty members produce online course materials and support
staff members who maintain the college's web site. ETC also manages the Iowa Communications Network fiber-optic
classroom located in the College of Education.

Educational Placement Office

The Educational Placement Office helps students and alumni pursuing careers in teaching, research, and education
leadership. The office's professional staff is available for individual conferences with students to critique a résumé or
curriculum vitae, discuss job search strategies, or assist with other career matters. Workshops, seminars, and special
programs related to educational employment and the job search are offered regularly. University of Iowa students and
alumni can establish a placement file consisting of letters of recommendation to be submitted to potential employers in
support of employment applications.

Current information about services and career resources is available through the office's web site
(http://www.education.uiowa.edu/edplace). The site provides links to information about employment opportunities in
schools, colleges, and related organizations. It also provides job search assistance, including curriculum vitae, résumé,
and letter writing tips and samples; preparation for the job search; sample interview questions; portfolio examples; and
employer advice for educators seeking jobs in K-12 environments, college and university settings, and in international
locations.

Iowa Center for Assistive Technology Education and Research

The Iowa Center for Assistive Technology Education and Research (ICATER) helps to ensure equal access and
opportunities for persons with disabilities by advancing assistive technology through research, education, and service.
The center collaborates with University and community programs to provide technical assistance that enhances the
services and resources available to educators, service providers, and persons with disabilities. It also sponsors
workshops and education programs. The center's assistive technology laboratory is available for student use, demonstrations, consultations, and research.

**Iowa Testing Programs**

Iowa Testing Programs provides assessment expertise to schools in the State of Iowa and consultation to the Iowa Department of Education and to area education agencies. Its faculty and staff develop standardized educational tests, such as the widely used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools, as well as other assessment tools to support instruction and learning. Iowa Testing Programs also conducts research studies in educational measurement and evaluation, publishes the results of these studies, sponsors lectures and symposia, provides consulting and in-service training to educators and school systems, and provides training experience for graduate students in educational measurement and evaluation.

**Libraries**

The University's Main Library and the Psychology Library provide books, periodicals, reference works, videos, ERIC microfiche, tests, and a reserved book room for students and faculty.

**Office of Graduate Teaching Excellence**

The Office of Graduate Teaching Excellence (OGTE) is dedicated to excellence in college teaching and the preparation of future faculty. In partnership with the Graduate College, the College of Education's OGTE coordinates the Graduate Certificate in College Teaching. The Certificate Program aims to enable all UI doctoral students to complement their home discipline's curriculum and research training with the development of effective post-secondary teaching skills. In addition, OGTE through the Iowa Education Fellows Program (IEFP) develops and conducts workshops and seminars that address the developmental needs of College of Education doctoral students from their first semester on campus through completion of their degree. OGTE facilitates opportunities for research examining graduate teaching excellence.

**Office of Teacher Education and Student Services**

The Office of Teacher Education and Student Services assists students, faculty, staff, and the general public in graduate and undergraduate admission, Graduate College examinations, student field experiences, and teacher licensure/certification. It also serves as a liaison with other University units, including the Graduate College, the College of Liberal Arts and Sciences, the Office of Admissions, and the Office of the Registrar, and with external agencies, including the Iowa Department of Education, out-of-state teacher licensure/certification departments, and school district personnel in Iowa and outside of the state.

A variety of application and information materials are available at the office and on the office's web site (http://www.education.uiowa.edu/tess).

**REACH Program**

The University of Iowa's REACH (Realizing Educational and Career Hopes) is a two-year postsecondary certificate program that focuses on meeting transitional needs of students with multiple learning difficulties (MLD) in an inclusive university setting. The program emphasizes life skills for independent living and features learning in small groups coupled with career coaching in real work settings.

REACH offers courses on academic skill building, career preparation, student and community life skills, and socialization taught by faculty members from the College of Education and other academic units on campus; see "Interdepartmental Courses" at the end of this Catalog section. Courses are open only to REACH students. Career field placements also are offered.

Support services are available to promote student success in all educational and career settings.

REACH students live in a University of Iowa residence hall, where they receive support from specially trained resident assistants. A fully inclusive college environment provides students with age-appropriate community opportunities and interactions with other University of Iowa students.

For more information, consult the REACH web site (http://www.education.uiowa.edu/reach/).

**Research Support**

The College of Education dean's office, through the Grant and Research Services Center (GRSC), provides grant and research-related support services for the college's faculty, staff, and students. GRSC staff members help identify internal and external funding sources, prepare and submit grant proposals and application materials, provide grant accounting services, and help in the preparation of applications for Human Subjects/Institutional Research Board review. The college also provides limited funds for faculty research, professional development, and travel.

**Financial Support**
Students interested in employment opportunities in the college's support units and special resources should contact the director of each facility and indicate their interests, their academic and experience records, and their career or degree goals at The University of Iowa.

Several sources of support are identified on the College of Education website under the students menu item. Graduate students may be eligible for graduate assistantships or other forms of financial support. See Financial Aid and Graduate Assistantships under Students on the College of Education web site (http://www.education.uiowa.edu/students/funding.htm). Some assistantships are listed in a reference available from the Office of Teacher Education and Student Services.

**Graduate Assistantships**

Individual academic programs provide opportunities for teaching, research, or service assistantships as well as for fellowships and related employment opportunities. Inquiries should be addressed to the chair of the department or the director of the program in which the student believes he or she can provide service or achieve an outstanding academic record. Assistantship appointments are usually, but not always, made by the program area.

**Graduate Research Assistantships in Education**

The Iowa Testing Programs provides funds to support a limited number of special graduate assistantships in education, in which students do research work under the direction of a faculty member of their choice. Students must be enrolled for at least 6 s.h. but not more than 12 s.h. per semester; assistantships are for the academic year and are renewable for a limited number of years. Students admitted to or pursuing any advanced degree program offered by the College of Education are eligible to apply, provided they are committed to a professional career in the United States.

Applicants must submit transcripts of all completed college work (undergraduate and graduate), recommendation forms specific to the assistantship, and scores on the Graduate Record Examination (GRE) General Test. For assistantship application forms, contact the Iowa Testing Programs director. Application deadline is late February.

**Scholarships**

Several scholarships are available to students for their student teaching semester. The scholarships are based on need, grade-point average, and future plans for teaching.

Scholarships are available each year for experienced teachers who are working toward licensure or an advanced degree in educational administration. The scholarships are based on the student's record as an effective teacher and promise as a school administrator; students must have completed four years of teaching experience and must be planning to work as elementary or secondary administrators.

Scholarships and awards are based on available funding.

For more information, see College of Education Scholarships and Awards on the college's web site (http://www.education.uiowa.edu/scholarships).

**College of Education Awards**

Awards are presented to outstanding students in the College of Education at a spring semester ceremony.

**The Duane D. Anderson Scholarship** is awarded to a transfer student from an Iowa community college who is enrolled in a College of Education program.

**The Jack Bagford Elementary Education Award** is presented to an outstanding elementary education student who is an Iowa resident. The student should be scheduled to do student teaching the academic year following the award.

**The David and Connie Belin Honors Award** is for graduating seniors in the Teacher Education Program who have completed all requirements for the Honors Opportunity Program.

**The Blommers-Hieronymus-Feldt Fellowship** is awarded to a doctoral student in the field of educational measurement and statistics; nominees must have completed at least one full year in the graduate program at The University of Iowa.

**Barry Bratton Award for Achievement in Design of Instructional Processes** is given to an outstanding student who has completed course work that reflects a commitment to the systematic design and improvement of instructional processes and materials.

**The Dr. Bettye M. Caldwell and Dr. Fred T. Caldwell Scholarship** is presented to an outstanding undergraduate student in elementary education.

**The Debra Clausen Memorial Award** is given to a qualified undergraduate or graduate student who will work at the Center for Disabilities and Development to evaluate and develop learning programs for students with mental disabilities, including Down Syndrome.
The T. Anne Cleary Psychological Research Scholarship is awarded to an outstanding doctoral student engaged in research on the psychological or quantitative foundations of education. The award may be presented to one international student and one permanent resident of the United States each year.

The John Leonard Davies Scholarship is presented to a first or second semester senior who is viewed as being creative and who has outstanding potential for success in the field of K-12 education.

The Harvey H. Davis Award is given to an outstanding candidate for an advanced degree in higher education or educational administration, particularly a student interested in the financing of education.

The Terry Ganshaw Memorial Award is given to an outstanding Ph.D. student in college student personnel.

The Emma Bauman Holmes Education Scholarship is awarded to an outstanding student in any undergraduate or graduate College of Education program who is in the top 20 percent of his or her class.

The Albert Hood Promising Scholar Award is given to an outstanding doctoral student in the Department of Counseling, Rehabilitation, and Student Development with an approved prospectus for doctoral research.

The Howard R. Jones Achievement Award is given to an outstanding graduate student who has made a noteworthy scholarly presentation at a national professional conference or has published a significant scholarly article in a reputable professional journal or other substantial printed work.

Loetscher Science Education Scholarship is awarded to a student in secondary science education, with preference given to those pursuing a chemistry emphasis.

The Perry Eugene McClenahan Award is given to the outstanding candidate for an advanced degree in educational administration.

The Leonard A. Miller Memorial Award is given to an outstanding first-year M.A. student majoring in rehabilitation counseling.

Minority Student Award is given to an outstanding College of Education undergraduate or graduate minority student who works with equity issues in the college and has made positive contributions to the life of the college.

The Melvin R. Novick Award is presented to a third- or fourth-year student enrolled in the doctoral program in educational measurement and statistics who has shown outstanding academic performance and promise of the highest level of achievement in research in this field.

Paul Opstad Scholarship is awarded to a graduate student in the College of Education whose career or scholarly interests focus on the concerns and needs of international students.

Guy and Gladys Peterson Award is given to an outstanding student who has been admitted to and has completed at least 12 s.h. of course work in the Teacher Education Program.

The Betty Piercy Scholarship Award is given to an outstanding student in reading who is expected to benefit the field in some direct way.

The Ann Ramsey and Richard E. Posey Scholarship is presented to an undergraduate student in their junior year of study who has been admitted into the Teacher Education Program in the College of Education.

The John E. Quinn Memorial Scholarship is presented to a full-time undergraduate student from eastern Iowa in Liberal Arts who has been admitted to the Teacher Education Program and is pursuing secondary school teaching licensure in the area of history.

The Rolland Ray Dissertation Fellowship is awarded to a doctoral student in the Department of Teaching and Learning whose dissertation addresses the measurement of educational objectives.

The Lloyd Smith Scholarship is awarded to an outstanding student in elementary social studies.

The Franklin Stone International Student Award is given to an outstanding international student pursuing a Ph.D. in education.

The James and Coretta Stroud Fellowship for Doctoral Study in Educational Psychology, Measurement, or Statistics is awarded to an outstanding graduate student in the Department of Psychological and Quantitative Foundations who is entering the dissertation phase of study.

The Edgar M. and Evelyn Benzler Tanruther Scholarship is awarded to an outstanding graduate student in elementary education.

The U-High Innovative Developments in Education Award is given to students who have completed or will complete student teaching during the school year. The award is based on outstanding performance as a student teacher, particularly for innovation and creativity shown during the experience.
The Erwin and Louise Wasta International Scholarship is awarded to an international student enrolled in a College of Education program.

For more information, see College of Education Scholarships and Awards on the College's web site (http://www.education.uiowa.edu/scholarships).

Faculty

All tenure-track faculty members hold earned doctorates in their teaching fields, and many have had teaching or administrative experience in the public schools. Several hold joint appointments in the College of Liberal Arts and Sciences.

Courses

The College of Education offers several interdepartmental courses and a number of courses for students in the REACH program; see the course lists below. For lists of courses offered by each of the college's academic departments, see the appropriate department sections in the Catalog: Counseling, Rehabilitation, and Student Development; Educational Policy and Leadership Studies; Psychological and Quantitative Foundations; and Teaching and Learning.

Education Interdepartmental Courses

07X:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.

07X:100 Honors Seminar in Education 1 s.h.
Research in education and related professions in collaboration with a College of Education faculty member of student's choice; preparation for senior honors project.

07X:101 Senior Honors Project 1-2 s.h.
Collaboration with a faculty member on research project; written report. Prerequisite: 07X:100.

07X:150 Introduction to Educational Research 3 s.h.
Principles of empirical educational research; logic of inquiry for both quantitative and qualitative research methodologies. Prerequisite: consent of instructor.

07X:181 ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Prerequisites: able to perform basic computer functions and use a World Wide Web browser. Same as 07C:181, 07E:181, 07P:181, 07S:181, 07U:181.

07X:387 Introduction to Online Post-Secondary Course Design and Facilitation 3 s.h.
Knowledge of distance learning and teaching at the post-secondary level; instructional design principles relevant to development of online courses. Prerequisite: consent of instructor.

07X:475 Ph.D. ePortfolio in College Teaching 3 s.h.
Framework for connecting authentic evidence of scholarly work and teaching competencies; use of advanced web and multimedia technologies to link artifacts to ePortfolio templates.

REACH Courses

The following courses are open only to students enrolled in the REACH program.

205:001 Academic Success 2 s.h.
Tools that help students succeed in academic courses; basic organization, efficient note taking, study and test-taking skills; participation in activities that increase awareness of classroom dynamics; solutions for test anxiety; ways to approach diverse learning experiences; how class content relates to study hall and residential facilities; seminar. Prerequisite: consent of R.E.A.C.H. advisor.
205:002 Communication I
Tools for communicating effectively; definition of basic types of communication--passive, aggressive, and assertive; participation in activities that increase awareness of changing environments and types of communication; observation and practice of communication methods in community and workplace settings; students identify their own communication styles and improve communication behaviors; seminar. Prerequisite: consent of R.E.A.C.H. advisor.

205:003 Communication II--Public Speaking
Builds on 205:002; the nature of public speaking; speech research, organization, and presentation; analysis of varied forms of public speaking; participation in activities that increase awareness of changing environments, audience, and types of speeches; students identify their own communication styles; seminar. Prerequisite: consent of R.E.A.C.H. advisor.

205:004 Computers and Technology I
Training in computer literacy and practical skills for computer use in everyday life; computer parts and functions, the Windows operating system, computer applications; use of the personal computer to improve personal, academic and workplace productivity; group discussion, demonstrations, and multimedia experience support diverse learning styles. Prerequisite: consent of R.E.A.C.H. advisor.

205:005 Computers and Technology II
Builds on 205:004; fundamental computer competencies and strategies to simplify everyday life and enhance workplace performance; opportunity to improve practical skills for the workplace, communication with others, and daily life; tools for improving personal organization and communication and for meeting academic, entertainment, and workplace needs; group discussion, demonstration, independent exploration, and a multimedia experience support diverse learning styles. Prerequisite: consent of R.E.A.C.H. advisor.

205:006 Contemporary Events and Citizenship
Preparation for becoming engaged, contributing citizens: opportunity to develop knowledge and skill for discussing current events--local, national, and international news, sports, and weather; voting and the political process, civic responsibilities in local and federal elections, and how students can participate; using print, broadcast, and the Internet, students develop critical thinking skills to understand how contemporary events affect them. Prerequisite: consent of R.E.A.C.H. advisor.

205:007 Health and Wellness I--Exploration
Introduction to health and personal wellness; the seven dimensions of wellness and health awareness; overview of topics such as nutrition, responsible sexual behavior, consequences of substance use, disease prevention; opportunity for students to build knowledge about their own emotional, mental, and physical health; framework for further exploration of everyday health and wellness; first in a series. Prerequisite: consent of R.E.A.C.H. advisor.

205:008 Health and Wellness II--Healthy Lifestyles
Health and wellness personalized for students; help in assessing individual health and wellness decisions and behaviors to improve current and long-term health and wellness; small group discussion, individual assessments, real-life exploration, interactions with health educators, one-on-one student support; second in a series. Prerequisite: consent of R.E.A.C.H. advisor.

205:009 Fitness and Wellness Lab I
Opportunity to improve understanding of and commitment to establishing and maintaining an active lifestyle; benefits of physical activity, fitness experiences, wellness, development of individual fitness goals; instruction, small group activities, and one-on-one support; integration of concepts and skills in health, social relationships, leisure activities, and daily living. Prerequisite: consent of R.E.A.C.H. advisor.

205:010 Personal Relationships and Sexuality
Help in maintaining current relationships and establishing new ones with family, friends, coworkers, teachers, significant others, and strangers; emotions, interpersonal communication skills, social cues, appropriate workplace relationships, risk prevention, responsible sexual behavior; influence of family values, culture, peer pressure, other factors in one's decisions about sexual behavior; disability awareness related to relationships, pregnancy prevention, the process of pregnancy; group discussion, one-on-one counseling support, role-playing, guided real-world experiences. Prerequisite: consent of R.E.A.C.H. advisor.

205:011 Personal Finance and Math I
Understanding of numbers, operations, and managing personal finances; computation strategies, problem-solving
Understanding of numbers, operations, and managing personal finances; computation strategies, problem-solving strategies, skills for good consumers; opportunity to practice math skills in the community and the workplace; first in a series. Prerequisite: consent of R.E.A.C.H. advisor.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>205:012</td>
<td>Personal Finance and Math II</td>
<td>1 s.h.</td>
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<tr>
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<td>Skills and knowledge needed for managing personal finances; banking, budgeting, insurance, how to be a good consumer; students plan for their financial future by studying paycheck information, actual income, and tax responsibility; research on independent living costs; second in a series. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:013</td>
<td>Lifetime Reading</td>
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<td>Enhancement of leisure reading toward enjoyment of reading as a lifetime activity; trip to the library to discover interesting genres and subjects; individual and group activities to review and talk about books; how to discuss components of books such as plot, characters. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<td>205:014</td>
<td>Practical Writing</td>
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<td>Writing tools for success in daily living; experience with a range of writing forms, beginning with short organizational forms such as to-do and grocery lists and progressing to family correspondence and business letters; observation and demonstration of writing techniques in group activities; help with self-expression in written formats, with focus on organization and communication with others; students practice writing techniques in class, in their residence halls, and in the community; seminar. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:015</td>
<td>Literature and the Arts</td>
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<td>Exposure to literature and the arts and the experience of connection and life enhancement that arts activities provide; reading and discussing literature, field trips to museums, musical performances, plays; opportunity to review and identify leisure activities to enjoy throughout life. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<td>205:016</td>
<td>Exploring Issues in Society</td>
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<td>Diversity and social justice issues; some social implications of being a person with a disability (e.g., negative treatment from others due to stigma, ignorance, stereotypes); guidance toward empowerment in self-advocacy at work, at school, and in community life; overview of cognitive and learning disabilities, Americans with Disabilities Act and other legislation that promotes equality, history of the disability rights movement, current social trends affecting people with disabilities; perspectives from America's history of social, cultural, and religious unity, celebration, and conflict. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<td>205:017</td>
<td>Tools for Life I: Critical Thinking</td>
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<td>Introduction to strategies, key elements, and resources for critical thinking; problem-solving and critical-thinking strategies and skills for responsible, independent decision making in personal, university, career, and community contexts; small-group discussion, case studies, role-playing, and applied practice in real-world situations related to daily, personal, academic, and career decisions. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<td>205:018</td>
<td>Tools for Life II: Problem Solving</td>
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<td>Introduction to strategies and methods of problem solving; evaluation of scenarios from academic, social, and work environments; discussion of students' personal and current experiences; focus on development of interpersonal communication skills, relationship building, independence, career selection. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:019</td>
<td>Personal Leadership</td>
<td>1 s.h.</td>
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<td>Builds on concepts learned in 205:016; self-advocacy and awareness of individual strengths as empowerment for leadership roles in the community; qualities of a leader, value of mentors, importance of community service; elements of work-life balance; opportunities to participate in life-long service learning and leadership. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:020</td>
<td>Psychology</td>
<td>2 s.h.</td>
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<td>Basic concepts of psychology, with focus on application in daily life; students conduct an experiment and may write a brief paper; vocabulary as a basis for learning and application. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:021</td>
<td>Sciences of Life</td>
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Scientific skills as they relate to everyday life and the world; skills involving independent operation of tools and equipment, working in a group, appropriate strategies for decision making and problem solving based on the scientific method; exploration of life sciences through classroom learning and exploratory activities. Prerequisite: consent of R.E.A.C.H. advisor.

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<td>205:022</td>
<td>Social Skills and Conflict Management</td>
<td>1 s.h.</td>
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<td>Tools for success in classes, campus life, community living, and employment; how to have positive interaction with others; effective ways to handle frustration and anger; acceptable ways to resolve conflict; role playing and other practice activities. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<td>205:023</td>
<td>Fitness and Wellness Lab II</td>
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<td>Builds on skills learned in 205:009; recreation and fitness opportunities across the lifespan; benefits of physical activity, year-round fitness activities, one-on-one support, help with developing and achieving personal wellness goals; integration of concepts and skills in health, social relationships, leisure activities, daily living. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<td>205:024</td>
<td>Great Conversations</td>
<td>1 s.h.</td>
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<td>Opportunity to learn across the academic disciplines and interact with University of Iowa professors and other guest lecturers; topics vary. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:025</td>
<td>Tools for Life III--Situational Awareness</td>
<td>1 s.h.</td>
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<td>Preparation for responding to and managing a variety of situations; how to identify different perspectives in varied environments, as seen through real-world experiences; small-group activities, role playing, and support in practicing skills for personal, academic, and job situations. Prerequisite: consent of R.E.A.C.H. advisor.</td>
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<tr>
<td>205:030</td>
<td>Career Exploration</td>
<td>4 s.h.</td>
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<td>Opportunity to explore, enhance, or broaden work interests, skills, and potential career opportunities; interest inventories, review of vocational experiences, interactive employer presentations, informational interviews, job site experiences; focus on self-assessment of one's individual vocational strengths. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:031</td>
<td>Job Search Strategies</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Fundamental tools and techniques for getting a job; students create a résumé, including references and updated work history; interview techniques, information gathering, thank-you letters, work-related vocabulary, appropriate behaviors and attitudes for a successful job search; role playing, demonstrations, real-world practice. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:032</td>
<td>Entrepreneurialism</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Characteristics, advantages, and disadvantages of self-employment; legal aspects of forming a business, marketing, acquiring start-up funding and other resources; financial obligations and monitoring of funds required for a successful business; students write a business plan. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:033</td>
<td>Business Support Seminar</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Aspects of careers in business support; office procedures, word processing skills, oral and written communication, records management, business terminology. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:034</td>
<td>Creative Arts Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Aspects of careers in creative arts; availability of employment, professional association memberships, vocabulary used in the creative arts work environment. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:035</td>
<td>Education Career Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Aspects of careers in education; additional training typically required for careers in education, child/student needs, lesson planning. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:036</td>
<td>Health Services Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Aspects of careers in health services; office procedures and equipment, customer service skills, terminology used in health care environments. Prerequisite: consent of R.E.A.C.H. advisor.</td>
<td></td>
</tr>
<tr>
<td>205:037</td>
<td>Hospitality Seminar</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
Aspects of careers in hospitality; customer service skills, phone and counter etiquette, vocabulary used in the hospitality industry. Prerequisite: consent of R.E.A.C.H. advisor.

205:038 Human Services Seminar
Aspects of careers in human services; types of human services environments, interpersonal relationships and boundaries, paperwork requirements, terminology commonly used in human services environments. Prerequisite: consent of R.E.A.C.H. advisor.

205:039 Industrial Seminar
Aspects of careers in industrial and production environments; occupational skill requirements and standards, knowledge of typical equipment that employees must operate, safety in the workplace, vocabulary for industrial and production work environments. Prerequisite: consent of R.E.A.C.H. advisor.

205:040 Marketing/Sales Seminar
Aspects of careers in marketing and sales; customer service skills, use of retail equipment, marketing techniques and the importance of product appearance, pricing and advertising, vocabulary used in a retail sales environment. Prerequisite: consent of R.E.A.C.H. advisor.

205:041 Parks and Natural Resources Seminar
Aspects of careers in parks and natural resources management; operation and maintenance of equipment, safety procedures, customer service skills, typical vocabulary for positions involving care and management of shrubs, trees, flowers, and turf. Prerequisite: consent of R.E.A.C.H. advisor.

205:042 Skilled Trades Seminar
Aspects of careers in the skilled trades; occupational skill standards in specific skilled trades, apprenticeships or advanced training required, safety in the workplace, vocabulary typical for specific skilled-trade work environments. Prerequisite: consent of R.E.A.C.H. advisor.

205:043 Information/Technology Seminar
Aspects of careers in information technology; occupational skill requirements and standards, knowledge of typical equipment employees must operate, safety in the workplace, typical vocabulary for information technology work environments. Prerequisite: consent of R.E.A.C.H. advisor.

205:050 Life Skills I--Transitions
Components of successful independent and community living; personal safety issues, effective communication skills for interacting with peers and college personnel, how to access broad community resources for living, work, and leisure; students develop a plan for personal daily routines; classroom activities, practical experiences on campus and in the community. Prerequisite: consent of R.E.A.C.H. advisor.

205:051 Life Skills II--Community Life
Review of previously learned skills for making the transition to independent living in the college environment; use of a personal planner for managing daily routines and schedules, planning for independent living after graduation; classroom activities, practical experiences on campus and in the community. Prerequisite: consent of R.E.A.C.H. advisor.

205:052 Life Skills III--On Your Own
Goal setting and planning for independent living after college; how to use daily living skills from college in students’ planned home communities; skills required for finding and managing a home or apartment, using community resources and agencies, and meeting basic needs; how to be interdependent and independent in the community. Prerequisite: consent of R.E.A.C.H. advisor.

205:060 Internship I
Introduction to the functional skills, job expectations, and environments of the workplace; each student completes an internship (an on-site work experience in the community) in his or her career emphasis area; employers and mentors support the student in the workplace; students practice communication skills by maintaining a journal and discussing their experience with their advisor or instructor; first of three consecutive internships. Prerequisite: consent of R.E.A.C.H. advisor.

205:061 Internship II

205:062 Internship III
Internship experience leading to increased independence in the workplace (e.g., more independent operation of equipment, socialization, workplace safety, problem solving, conflict management); opportunity to acquire additional workplace skills in the student's career emphasis area; employers and mentors guide students in fulfilling their job responsibilities; students maintain a journal and discuss their experience with their advisor or instructor; second of three consecutive internships. Prerequisite: consent of R.E.A.C.H. advisor.

205:062 Internship III
Internship experience with opportunities to develop more advanced skills for independent communication, problem solving, and workplace performance in the student's career emphasis area; employers and mentors observe the student in the workplace; students maintain a journal and discuss their experience with their advisor or instructor; third of three consecutive internships. Prerequisite: consent of R.E.A.C.H. advisor.

205:099 Independent Study
Independent study coordinated with the student's REACH advisor. Prerequisite: consent of R.E.A.C.H. advisor.
Counseling, Rehabilitation, and Student Development

Chair: Dennis R. Maki
Professors: Nicholas Colangelo, Dennis Harper, Dennis R. Maki, Leslie Margolin, Ernest Pascarella, Vilma Tarvydas, Elizabeth J. Whitt
Professors emeriti: Richard Dustin, Albert B. Hood, David A. Jepsen
Associate professors: Debra Liddell, Tarrell Portman, Jodi Saunders, John Wadsworth, Sherry Watt
Associate professors emeriti: William A. Matthes, Ralph R. Roberts Jr.
Assistant professors: David Duys, Noel Estrada Hernandez, Malik Henfield, Susannah Wood
Adjunct assistant professors: David Grady, Barbara O'Rourke, Johnnie Sims, Von Stange, Anne Zalenski
Clinical assistant professor: Carol M. Smith
Visiting assistant professor: Becki Elkins
Adjunct lecturers: Leanne Eichinger, Coreen Frank, Valerie Garr, Sarah Hansen, Peter Teahen, Orville Townsend

Undergraduate nondegree program: Minor in Human Relations
Graduate degrees: M.A., Ph.D.
Web site: http://www.education.uiowa.edu/crsd

The Department of Counseling, Rehabilitation, and Student Development prepares students to facilitate human development across the life span and to serve local, national, and international communities. It achieves these goals through development of knowledge, skills, and attitudes appropriate for effective professional practice and for conducting and disseminating research.

The department prepares practitioners and scholars primarily at the graduate level, through degree programs in counselor education and supervision, rehabilitation counseling, rehabilitation counselor education, school counseling, and student affairs. It also offers basic courses in interviewing and interpersonal skills for students in other professional and graduate programs.

Undergraduate Program

The department offers a minor in human relations. Contact the Office of Teacher Education and Student Services for information.

Graduate Programs

The department offers the following graduate degrees: M.A. in student development in postsecondary education; M.A. in community/rehabilitation counseling, and Ph.D. in rehabilitation counselor education; M.A. in school counseling, and Ph.D. in counselor education and supervision.

As of fall 2009, the Ph.D. in student affairs administration and research merged with the Ph.D. in higher education (see Educational Policy and Leadership Studies). Students who entered the program before fall 2009 must fulfill the requirements that were in force when they enrolled; to see archived editions of the Catalog, visit http://www.registrar.uiowa.edu/registrar/ and use the "Select a Catalog" drop-down menu.

Upon completing a degree in the department, students are evaluated and are expected to have awareness, knowledge, and skills in the following areas:

- current definitions, professional standards, and appropriate professional practices regarding multiculturalism;
- what it means to be a multiculturally competent helping professional;
- integration of feedback into practice and professionalism in interpersonal interactions;
- personal limitations and strengths that could ultimately support or harm a client or student;
- a personal plan for future practice in the field regarding multicultural relationships.

Prospective students must meet admission requirements for the individual programs as well as the department's general admission requirements (see "Admission" later in this section). Criminal background checks may be required.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

Student Affairs

The department offers a Master of Arts in student development in postsecondary education.

M.A. in Student Development in Postsecondary Education

The Master of Arts emphasizes theory and practice. It prepares students for a wide variety of entry- and mid-level positions in colleges and universities, including work in admissions and orientation, student activities, career planning, academic planning and support, residence life, and international student programs and advising. M.A. students are required to pass written comprehensive examinations. A thesis is optional.
The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

ADMISSION

Applicants who meet the following criteria are given preference for admission: an undergraduate g.p.a. of at least 3.00, significant undergraduate leadership experience, writing ability, and fit with the program.

The admissions committee considers each applicant's entire application portfolio. Personal interviews are encouraged and may be required. All applications must include complete application forms; three letters of reference and/or completed recommendation forms; a written statement of goals, interests, and experiences relevant to graduate study in student development at The University of Iowa; official Graduate Record Exam (GRE) General Test scores; and official transcripts for previous postsecondary course work.

Applications are considered for fall semester and are due by February 1.

Campus visit days, held each March, give admitted M.A. applicants the opportunity to interview for assistantships and meet current students. Prospective students also may arrange campus visits at other times.

REQUIREMENTS

The M.A. in student development and postsecondary education requires 48 s.h. of graduate credit. It is designed for two years of full-time study (9-12 s.h. per semester), although some students study part-time toward the degree.

The curriculum is based on theories of student learning and development; good administrative practices; knowledge of higher education contexts; research on college students, student affairs, and higher education; helping skills in multicultural environments; and connections among research, theories, and practice.

Experiential Components

The program requires a practicum and an internship. This experiential course work provides professional development experiences for the program's students. Practical experiences include developmental work with individual students; program planning, implementation, and evaluation; understanding and advising groups; administration and supervision; exposure to diverse students; use of assessment and evaluation tools; and application of ethical guidelines.

M.A. students must complete at least one eight-hour-per-week practicum in a student services office, usually during the second semester of the first year. An M.A. site supervisor and program faculty members supervise the practicum, which includes a weekly seminar (07C:333 Practicum in Student Services).

After successfully completing the practicum, students are eligible to begin a required internship in an approved student services site. The internship helps students integrate theory and standards into practice and develop a professional identity in the field. Interns must complete 600 clock hours under the supervision of an M.A. supervisor. Most students complete this requirement in half-time graduate assistantships over two semesters during the second year. Regular evaluations are required. Students meet weekly with their classmates and faculty supervisor in 07C:363 Capstone Seminar in Student Services.

In addition to practicums and internships on campus, there are field site opportunities at several nearby colleges. Cornell College, Mount Mercy College, Coe College, and Kirkwood Community College are within a 20-mile drive from Iowa City. Grinnell College, Saint Ambrose University, Muscatine Community College, and Augustana College are within a 60-minute drive.

Sample Course Schedule

First year, fall semester:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>07C:278</td>
<td>Applied Microcounseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:330</td>
<td>Introduction to Student Services</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:331</td>
<td>College Students and Their Environments</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:334</td>
<td>College Student Learning, Cognitive, and Moral Development</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

First year, spring semester:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>07C:203</td>
<td>Career Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:250</td>
<td>Multiculturalism in Helping Professions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:333</td>
<td>Practicum in Student Services</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>One elective</td>
<td></td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Community/Rehabilitation Counseling

M.A. in Community/Rehabilitation Counseling

The Master of Arts in community/rehabilitation counseling prepares professional counselors to provide assistance in employment, independent living, and personal or economic development to persons with disabilities and other individuals who encounter barriers in meeting their functional needs. It also prepares counselors in the mental health counseling/psychiatric rehabilitation specialization to obtain licensure as professionals who provide services in community mental health settings.

Community/rehabilitation counselors work in a variety of settings, including public agencies such as state vocational rehabilitation programs and Veterans Affairs vocational rehabilitation programs; independent living centers; community-based rehabilitation centers and supported employment programs; private for-profit worker's compensation and insurance rehabilitation agencies; and mental health agencies. They provide interventions designed to help persons with disabilities adapt to the demands of their environments. They also prepare the environments to accommodate the individual's needs. Assessment, personal and vocational counseling, development of rehabilitation and treatment plans, case management, service coordination, psychosocial adjustment, job development, placement, and follow-up are typical services that community/rehabilitation counselors provide.

The M.A. program in community/rehabilitation counseling is accredited by the Council on Rehabilitation Education (CORE). The program also is accredited in community counseling by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Graduates of the M.A. program are eligible for certification by the Commission on Rehabilitation Counselor Certification (CRC) and the National Board for Certified Counselors. By completing the mental health counseling/psychiatric rehabilitation specialization course work, students also complete the courses they must take in order to apply for licensure as mental health counselors in Iowa.

ADMISSION

No specific undergraduate major area of study is required, but a major in one of the social sciences is considered good preparation for the M.A. in community/rehabilitation counseling. Applicants should have a good academic record and relevant experience, such as assisting individuals with disabilities. Postbaccalaureate work experience relevant to the field of community/rehabilitation counseling is preferred. The program encourages applications from persons traditionally underrepresented in the field, particularly those with a disability and/or members of minority or ethnic groups. Applicants also must meet the department's admission requirements (see "Admission" later in this section). A personal interview is required, either in person or by telephone.

Applications for full-time study are accepted for summer session (June) entry. Application deadline for full-time study is April 1 for U.S. applicants, March 1 for international applicants. Applications for part-time study are accepted for fall and spring semesters.

Students pursue a sequenced plan of study that begins in summer session. Although students may be admitted for any semester, the department highly recommends that full-time students begin the program in summer.

REQUIREMENTS

The M.A. in community/rehabilitation counseling requires a minimum of 60 s.h. of graduate credit, including a 12 s.h. specialty emphasis area of the student's choice. Full-time students can complete the program in two academic years (four semesters plus two summer sessions, approximately 21 months).
The curriculum blends academic work with supervised clinical experiences. Students take three semesters of practicum concurrently with academic courses. The program concludes with a full-time internship (40 hours per week) during a spring semester. Students are assigned to rehabilitation and community mental health agencies or facilities that meet CORE and CACREP accreditation standards and that have programs or clientele who match the student's interests and educational objectives. Clinical placements require criminal background checks.

Supervised practicums, internships, and comprehensive examinations are not offered during summer sessions.

Requirements are as follows.

**Department Requirements**

- 07B:206 Research Process and Design 3 s.h.
- 07C:202 Introduction to Group Counseling 3 s.h.
- 07C:221 Theories of Counseling and Human Development Across the Life Span 3 s.h.
- 07C:250 Multiculturalism in Helping Professions (or equivalent) 3 s.h.
- 07C:270 Issues and Ethics in Counseling 3 s.h.
- 07C:278 Applied Microcounseling 3 s.h.
- Clinical practice (see "Clinical Practice," below) 16 s.h.

**Program Requirements**

- 07C:201 Introduction to Counseling and the Counseling Profession 1 s.h.
- 07C:210 Rehabilitation Client Assessment 3 s.h.
- 07C:241 Introduction to Rehabilitation Counseling and Case Management 3 s.h.
- 07C:247 Medical Aspects of Disability 3 s.h.
- 07C:249 Psychiatric Disorders and Interventions 3 s.h.
- 07C:341 Job Development Placement and Follow-up 3 s.h.
- 07C:342 Psychosocial and Developmental Aspects 3 s.h.
- 07C:348 Prepracticum in Rehabilitation Counseling and Case Management 3 s.h.
- 07C:349 Practicum in Rehabilitation Counseling and Case Management 3 s.h.
- 07C:352 Internship in Rehabilitation Counseling and Case Management 9-12 s.h.
- 07C:350 Advanced Practicum in Rehabilitation Counseling and Case Management 3 s.h.
- 07C:351 Advanced Practicum in Mental Health and Substance Abuse 3 s.h.

**Clinical Practice**

All of these:

- 07C:348 Prepracticum in Rehabilitation Counseling and Case Management 3 s.h.
- 07C:349 Practicum in Rehabilitation Counseling and Case Management 3 s.h.
- 07C:352 Internship in Rehabilitation Counseling and Case Management 9-12 s.h.

One of these:

- 07C:350 Advanced Practicum in Rehabilitation Counseling and Case Management 3 s.h.
- 07C:351 Advanced Practicum in Mental Health and Substance Abuse 3 s.h.

**SPECIALIZATION**

With their advisor's approval, students select one of the following specialization areas: aging and rehabilitation, brain injury rehabilitation, mental health/substance abuse counseling, mental health counseling/psychiatric rehabilitation, disaster mental health counseling, disability management, nonprofit agency management, correctional rehabilitation, multiculturalism, assistive technology, and Spanish-English emphasis. Students choose 12 s.h. of course work in their area. The specialization must include 9 s.h. of didactic course work and 3 s.h. of professional practice appropriate to the specialty at the practicum or internship level.

**COMPREHENSIVE EXAMINATION**

In addition to the departmental comprehensive examination, a three-hour written examination on the process and practice of rehabilitation and community counseling is required. Exams are offered only during fall and spring semesters.

**Ph.D. in Rehabilitation Counselor Education**

The Doctor of Philosophy in rehabilitation counselor education prepares professionals for leadership roles in rehabilitation counselor education, research, administration, and service delivery systems. It provides rehabilitation counselors the opportunity to master knowledge; clinical, teaching, and supervisory skills; and research competencies at the most advanced levels.
Ph.D. students focus on three areas of advanced development: rehabilitation counselor education and supervision, research, and professional practice. The program is flexible, permitting students to pursue individualized plans of study within the required curriculum. Ph.D. graduates are expected to have sufficient knowledge and skill to teach at colleges and universities, supervise other professionals, and provide clinical services to clients. They also should have competencies to engage in and evaluate theoretical, qualitative, and quantitative research.

ADMISSION

Applicants should have a master’s degree in rehabilitation counseling or a related area and a graduate g.p.a. of 3.00 or higher. One year of full-time work experience in rehabilitation or a related field is strongly encouraged. Applicants should include a written statement of purpose for pursuing the Ph.D. in rehabilitation counselor education and personal career objectives, official score on the Graduate Record Exam (GRE) General Test, and three letters of recommendation. A personal interview is required.

Applications are accepted for fall, spring, or summer entry; fall entry is strongly advised. Faculty consideration of applications begins January 15 for fall entry, November 15 for spring entry, and April 1 for summer entry.

REQUIREMENTS

The Ph.D. in rehabilitation counselor education requires a minimum of 90 s.h. of graduate credit, including relevant course work taken for the master’s degree. Most students complete their course work in three years and take a fourth year to complete the dissertation. Students who have not completed a master’s degree in rehabilitation counseling must take appropriate masters-level courses or their equivalents. This combination of master's and doctoral course work ensures exposure to vocational rehabilitation as well as to independent living rehabilitation and community-based counseling processes, concepts, programs, and services.

Each student is required to submit a curriculum plan. The rehabilitation counseling faculty reviews each student annually. To continue in the program, students must meet the department’s requirements for maintaining candidacy.

Requirements are as follows.

Department Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>07C:255</td>
<td>Advanced Career Development and Counseling (or equivalent)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:353</td>
<td>Advanced Counseling and Psychotherapy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:357</td>
<td>Advanced Group Counseling and Psychotherapy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:400</td>
<td>Seminar: Ethics and Issues in Counseling</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Program Requirements

Students are expected to have completed core rehabilitation counseling requirements during master's degree work (see "M.A. in Community/Rehabilitation Counseling" above). The advisor and program faculty determine which master's-level courses must be taken to correct deficiencies. Students also must complete the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>07C:360</td>
<td>Advanced Practicum in Counseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:369</td>
<td>Advanced Seminar in Rehabilitation Counseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:380</td>
<td>Practicum in College Teaching</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>07C:385</td>
<td>Teaching and Learning in Higher Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:450</td>
<td>Advanced Social Psychology of Disability</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:454</td>
<td>Supervision Theory and Practice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:455</td>
<td>Practicum in Clinical Supervision</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:217</td>
<td>Seminar in College Teaching</td>
<td>1-3 s.h.</td>
</tr>
</tbody>
</table>

Statistics and Research Design

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with the following statistics and research design requirements.

All of these:
07C:338 Essentials of Qualitative Inquiry 3 s.h.
07C:460 Seminar: Research in Counseling 3 s.h.
07C:461 Practicum in Research 3 s.h.
07P:243 Intermediate Statistical Methods 4 s.h.
07P:246 Design of Experiments 4 s.h.
07X:150 Introduction to Educational Research (taken during first year in program) 3 s.h.

One quantitative research methods course chosen from these (at least 3 s.h.):

07P:244 Correlation and Regression 4 s.h.
07P:245 Applied Multivariate Analysis 3 s.h.
07P:250 Computer Packages for Statistical Analysis 3 s.h.
07P:252 Introduction to Multivariate Statistical Methods 3 s.h.

MINOR AREA

Students plan a minor area in collaboration with their major advisor and curriculum plan committee. The minor area must be outside the department. Students select a minimum of 9 s.h. of course work in the minor area, in collaboration with their minor advisor and with the approval of their curriculum plan committee.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three exams that total nine hours. They cover the department core (three hours), rehabilitation counseling—theory, practice, and research (three hours), and the minor area (three hours).

DISSERTATION

The dissertation is a major research study planned in collaboration with the student's major advisor. At least two rehabilitation counseling faculty members serve on the dissertation committee; one of them chairs or co-chairs the committee.

07C:493 Ph.D. Thesis 10-15 s.h.

School Counseling

M.A. in School Counseling

The Master of Arts in school counseling prepares individuals to work effectively as counselors in K-12 school settings. The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). Successful graduates are eligible for K-12 school counselor licensure in Iowa. Students may apply to the National Board for Certified Counselors at the completion of their programs.

School counseling students are strongly encouraged to earn an endorsement in talented and gifted education or a certificate from the Belin-Blank Center for Gifted Education. Most required course work for the endorsement is required by the program.

ADMISSION

Applicants should have an undergraduate g.p.a. of 3.00 or higher. The department prefers that applicants have one year of teaching experience or successful experiences with children and/or adolescents, which they must document in a written statement. Graduate Record Examination (GRE) General Test scores must be on file at the University.

Applications are accepted for summer entry. Applications should be submitted by March 1 for U.S. applicants, February 1 for international applicants.

REQUIREMENTS

The M.A. in school counseling requires a minimum of 54 s.h. of graduate credit. The program emphasizes gifted education. During the first few semesters, students take core cognate courses, including course work on gifted education, and the microcounseling clinical skills laboratory. Then they enter a counseling practicum followed by an internship. Students who enter without teaching licensure are required to take additional course work in education (07E:100 Foundations of Education, 07U:100 Foundations of Special Education, and 07P:200 Educational Psychology or equivalent) to meet school counselor licensure standards. Students are expected to complete at least 100 clock hours in practicum and 600 clock hours in internship activities in an approved school setting, under the supervision of
an experienced licensed school counselor and a University faculty supervisor.

Students must complete program and department core courses as outlined on the Department of Counseling, Rehabilitation, and Student Development website before enrolling in 07C:300 Practicum in School Counseling for the summer session of their last year in the program. All students are required to complete a background check the spring before they enroll in the practicum. Students who are not licensed teachers must complete course work in education before enrolling in the practicum.

Each student’s progress is reviewed periodically by the program faculty. Students who have successfully completed all prerequisites for 07C:300 Practicum in School Counseling are reviewed in the semester before they take the practicum course, to assure that they are prepared for it. During the summer, students are evaluated to assure their readiness for the internship 07C:321 Internship in Elementary School Counseling or 07C:322 Internship in Secondary School Counseling, which requires assignment in approved schools for the fall and/or spring semesters.

The following schedule of required courses reflects a three-year program of study. Students who do not have teacher licensure are required to complete at least three additional courses in education before the third year of classes.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>07C:137</td>
<td>Introduction to Educating Gifted Students</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07U:140</td>
<td>Characteristics of Disabilities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:200</td>
<td>Professional School Counselor</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:202</td>
<td>Introduction to Group Counseling</td>
<td>3 s.h.</td>
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<tr>
<td>07C:203</td>
<td>Career Development</td>
<td>3 s.h.</td>
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<tr>
<td>07C:204</td>
<td>School Culture and Classroom Management for School Counselors</td>
<td>3 s.h.</td>
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<tr>
<td>07B:206</td>
<td>Research Process and Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:221</td>
<td>Theories of Counseling and Human Development Across the Life Span</td>
<td>3 s.h.</td>
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<tr>
<td>07C:222</td>
<td>Counseling Children and Adolescents in Schools</td>
<td>3 s.h.</td>
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<tr>
<td>07C:223</td>
<td>Counseling Gifted and Talented Students</td>
<td>3 s.h.</td>
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<tr>
<td>07C:230</td>
<td>School Counseling Program Leadership and Management</td>
<td>3 s.h.</td>
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<tr>
<td>07C:250</td>
<td>Multiculturalism in Helping Professions</td>
<td>3 s.h.</td>
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<tr>
<td>07C:254</td>
<td>Assessment and Appraisal</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:256</td>
<td>Action Research: School-Based Field Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:278</td>
<td>Applied Microcounseling</td>
<td>3 s.h.</td>
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<tr>
<td>07C:300</td>
<td>Practicum in School Counseling</td>
<td>3 s.h.</td>
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<tr>
<td>07C:321</td>
<td>Internship in Elementary School Counseling</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:322</td>
<td>Internship in Secondary School Counseling</td>
<td>3 s.h.</td>
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</tbody>
</table>

COMPREHENSIVE EXAMINATION

All students are required to take comprehensive exams for counseling, rehabilitation, and student development and for school counseling during their final semester of internship. Comprehensive exams include a written six-hour exam in counseling, rehabilitation, student development, and school counseling. An oral exam also is required unless waived by the comprehensive exam committee.

Counselor Education and Supervision

Ph.D. in Counselor Education and Supervision

The Doctor of Philosophy in counselor education and supervision prepares students with knowledge and skills related to general counseling (including mental health and school counseling), teaching, consulting, supervising counselors, and conducting research. Graduates enter professional work as counselors, counselor supervisors, counselor educators, researchers and/or consultants, or work in other positions requiring expertise in human relations. Students may choose an emphasis in gifted and talented education, school counseling, professional leadership, or other area agreed upon by faculty advisors.

Counselor education and supervision graduates are prepared to teach the knowledge and skills required of professional counselors and to supervise beginning and advanced counselors; perform counseling interventions with individuals and groups; and teach human relations skills in colleges or universities. They provide professional consultation with counseling practitioners and policy makers about counseling program development and evaluation. They also may perform research that contributes to knowledge about counseling, supervision, and counselor education.

The program is accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The American Counseling Association (ACA) and the Association for Counselor Education and Supervision (ACES) are the professional organizations most related to program activities.
ADMISSION

In addition to the department's admission requirements (see "Admission" later in this section), Ph.D. applicants must provide evidence of successful experience in counseling or a closely related profession. Applicants without experience may be admitted if their credentials indicate exceptional strengths.

Students may be admitted for fall, spring, or summer entry, but the department strongly advises application for fall entry. Consideration of applications begins January 15 for fall entry; all application materials should be received at the University by this date.

REQUIREMENTS

The Ph.D. in counselor education and supervision requires 90 s.h. of graduate credit. Students complete required courses in counseling and in research tools and applications, an optional emphasis area, and a minor outside the department. They also take comprehensive examinations and complete a dissertation.

Most students complete their course work in three years and take a fourth year to complete the dissertation. Students who have not completed a master's degree program approved by the Council for Accreditation of Counseling and Related Educational Programs (CACREP) may need to remedy deficiencies by taking appropriate master's-level course work.

Required Courses

- 07C:255 Advanced Career Development and Counseling (or equivalent) 3 s.h.
- 07C:347 Home/School/Community: System Interventions 3 s.h.
- 07C:353 Advanced Counseling and Psychotherapy 3 s.h.
- 07C:357 Advanced Group Counseling and Psychotherapy 3 s.h.
- 07C:360 Advanced Practicum in Counseling (section 002) 3 s.h.
- 07C:380 Practicum in College Teaching 3 s.h.
- 07C:385 Teaching and Learning in Higher Education 3 s.h.
- 07C:400 Seminar: Ethics and Issues in Counseling 3 s.h.
- 07C:451 Advanced Multiculturalism 3 s.h.
- 07C:454 Supervision Theory and Practice 3 s.h.
- 07C:455 Practicum in Clinical Supervision 3 s.h.
- 07C:457 Seminar: Professional Orientation to Counselor Education and Supervision 3 s.h.
- 07C:458 Seminar: Current Issues and Trends in Counselor Education and Supervision 3 s.h.
- 07C:459 Seminar: Leadership and Advocacy in Counselor Education and Supervision 3 s.h.
- 07C:465 Internship in Counselor Education (at least 240 hours) 3 s.h.
- At least one course in human development 3 s.h.
- At least one advanced course in psychological or educational measurement 3 s.h.

Research Tools and Applications

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with the following research tools and applications requirements.

The following are minimum requirements. Students are expected to master research tools and applications beyond the minimum requirements in order to develop research skills consistent with their professional goals.

- 07C:338 Essentials of Qualitative Inquiry 3 s.h.
- 07C:394 M.A. Equivalency Research (for students without an approved M.A./M.S. thesis) 1-3 s.h.
- 07C:460 Seminar: Research in Counseling 3 s.h.
- 07C:493 Ph.D. Thesis 10-15 s.h.
- 07P:243 Intermediate Statistical Methods 4 s.h.
- 07X:150 Introduction to Educational Research (taken during first year in program) 3 s.h.

At least one course in quantitative research methods chosen from these (at least 3 s.h.) or one additional course in qualitative research:
Minor Area

Students take a series of courses (typically a minimum of three) in an area of study outside the Department of Counseling, Rehabilitation, and Student Development. They select course work in collaboration with their minor area advisor, a faculty member from the area, and with approval of the curriculum plan committee.

Master's Thesis Project or Equivalency

Students are required to submit a previously conducted master's thesis for faculty review and approval or to complete a new supervised experiential research project before taking comprehensive exams.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three 3-hour exams and an oral defense, including a department comprehensive exam, a counselor education and supervision program comprehensive exam, and an exam on the minor area. The comprehensive exam may be taken during the student's final semester of course work, which typically includes internship.

DISSERTATION

The major research project culminating in the doctoral thesis may be on any topic related to counseling and counselor education. The thesis advisor and the examining committee approve the topic and procedures at a formal prospectus meeting. The final oral examination on the thesis is conducted by the examining committee. Students usually earn 10 s.h. for dissertation work, but in some instances they may earn up to 15 s.h.

Admission

All M.A. and Ph.D. applicants must submit the following:

- a completed graduate application form;
- copies of official transcripts of all previous undergraduate and graduate college work;
- official report of Graduate Record Examination (GRE) General Test verbal and quantitative scores;
- a statement of the applicant's reasons for seeking an advanced degree in the department, including a statement of personal career objectives;
- three current letters of recommendation from persons in a position to assess both the applicant's prospects for completing either the M.A. or Ph.D., and his or her commitment to the profession.

The department may request a personal or telephone interview.

The following admission standards are considered for individual program admission decisions.

M.A. applicants should have an undergraduate g.p.a. of at least 3.00.

Ph.D. applicants should have an undergraduate g.p.a. of at least 3.00, or if they hold a graduate degree, a graduate g.p.a. of at least 3.00.

Typically, doctoral students are not admitted unless they have completed a master's degree in counseling or a related field. Relevant work experiences are important. Students who are accepted without a related master's degree must complete core master's-level course work before taking advanced Ph.D. courses. Required remedial courses and experiences are determined in consultation with the advisor and are included in a student's curriculum plan.

Visit the Department of Counseling, Rehabilitation, and Student Development web site for details about admission and program requirements.

INTERNATIONAL APPLICANTS

International applicants must score at least 550 (paper-based), 213 (computer-based), or 80 (Internet-based) on the Test of English as a foreign language (TOEFL). The department may require applicants with lower TOEFL scores to complete University of Iowa course work in English language fluency. TOEFL scores must be submitted with the
application for admission.

**Final Decision, Special Requirements**

The criteria listed above are minimum standards for admission. Final admission decisions are made by faculty committees. Some programs may have special admission requirements due to licensure/certification standards. Special admission requirements are listed with individual program information.

**Conditional Admission**

Applicants who do not meet the requirements for regular admission may be admitted on conditional status if the faculty determines that they show strengths and promise warranting conditional admission. Applicants admitted on conditional status must satisfy the following requirements in order to achieve regular status.

M.A. students admitted on conditional status must complete at least 12 s.h. of core courses (approved by an advisor) over two consecutive sessions and earn a cumulative g.p.a. of at least 3.00.

Ph.D. students admitted on conditional status must complete at least 12 s.h. of core courses (approved by an advisor) over two consecutive sessions and earn a cumulative g.p.a. of at least 3.00.

**Maintaining Candidacy**

All graduate students must meet the following standards in order to maintain their candidacy for a degree:

- maintain a g.p.a. of at least 3.00;
- successfully complete a practicum, internship, or equivalent professional experience;
- maintain professional behavior consistent with the American Counseling Association code of ethics and any additional code of professional ethics adhered to in any agency in which the student completes a practicum or internship;
- demonstrate progress toward the degree through successful completion of semester hours specified in the curriculum plan and active registration each session (exceptions may be approved by the advisor).

Each student's academic and professional progress is reviewed annually. A written report is provided to the student and a copy is placed in his or her department file.

**Probational Status**

M.A. and Ph.D. students who earn a cumulative g.p.a. lower than 3.00 are placed on probational status and are notified in writing. Students on probational status have two consecutive sessions to raise their grade-point average to the established standard. If that requirement is not met, the student may be removed from the program. Each student is allowed one probational status during his or her program of study.

**Application**

For application materials, visit the Department of Counseling, Rehabilitation, and Student Development web site.

Applications must be complete before they can be reviewed. Applicants are responsible for providing a complete application dossier; to check on whether an application dossier is complete, contact the College of Education Office of Teacher Education and Student Services. Application forms are available on the web.

Applicants are notified in writing after their applications have been reviewed. Applicants who are accepted must reply in writing in order to maintain their admission status.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Financial Support**

There is a wide variety of graduate assistantships for students in the department. For example, many of the University's student service units award graduate assistantships. Applicants for assistantships should contact the department or the coordinator of the particular graduate program they plan to enter.

Applicants seeking fellowships or assistantships should complete their applications as early as possible.

**Facilities**

An on-campus counseling suite serves as a laboratory for training. In addition, a wide variety of supervised clinical experiences are available in community agencies, schools, and colleges, as well as throughout the University. Internships may be completed at approved sites nationwide.
### Counseling, Rehabilitation, and Student Development Courses

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07C:030</td>
<td>Belin-Blank Center First-Year Seminar</td>
<td>1 s.h.</td>
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<td></td>
<td>Presentations and discussions by University resource experts and Belin-Blank Center for Gifted Education staff. Prerequisite: Belin-Blank Center student standing.</td>
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<tr>
<td>07C:081</td>
<td>Making a Vocational-Educational Choice</td>
<td>2 s.h.</td>
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<tr>
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<td>Vocational decision-making process, self-evaluation, exploration of the world of work; for students who are uncertain about their educational and vocational goals.</td>
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<tr>
<td>07C:119</td>
<td>Family Issues in Giftedness</td>
<td>1 s.h.</td>
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<td>Family dynamics and issues that arise when one or more children are identified as gifted; parent/child, sibling, school/family relationships.</td>
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<tr>
<td>07C:120</td>
<td>Psychology of Giftedness</td>
<td>3 s.h.</td>
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<td>Theories of learning, child development, motivation; issues unique to gifted education. Same as 07P:120.</td>
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<tr>
<td>07C:121</td>
<td>Identification of Students for Gifted Programs</td>
<td>3 s.h.</td>
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<td></td>
<td>Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as 07P:121.</td>
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<tr>
<td>07C:123</td>
<td>Gender Issues and Giftedness</td>
<td>1 s.h.</td>
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<td></td>
<td>Effect of gender on development of giftedness; differential needs of girls, boys; strategies for effective teaching, gender equity.</td>
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<tr>
<td>07C:124</td>
<td>Ethnic and Cultural Issues and Giftedness</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Effect of ethnicity and culture on development of giftedness; special needs of Black, Hispanic, Native American, and Asian gifted students; strategies for identification, programming.</td>
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<tr>
<td>07C:125</td>
<td>Counseling and Psychological Needs of the Gifted</td>
<td>1 s.h.</td>
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<td></td>
<td>Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as 07P:125.</td>
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<tr>
<td>07C:126</td>
<td>Cognitive and Affective Needs of Underachieving Gifted</td>
<td>1 s.h.</td>
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<td></td>
<td>Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 07P:126.</td>
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<tr>
<td>07C:127</td>
<td>Research and Theory in Talent/Giftedness</td>
<td>1 s.h.</td>
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<td></td>
<td>Biennial research symposium. Same as 07P:127.</td>
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<tr>
<td>07C:128</td>
<td>Advanced Leadership Seminar in Gifted Education</td>
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<td></td>
<td>Development of administrative policies and programming based on empirical research; for experienced leaders in gifted education.</td>
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<tr>
<td>07C:129</td>
<td>Creativity: Issues and Applications in Gifted Education</td>
<td>1 s.h.</td>
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<td>Theories that underpin contemporary definitions of creativity; instruments developed to measure creativity; activities in the school environment that enhance or inhibit student creativity. Same as 07P:129.</td>
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<tr>
<td>07C:130</td>
<td>Human Sexuality</td>
<td>3 s.h.</td>
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<td></td>
<td>How young adults experience, discuss, and engage in sex; short essays.</td>
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<tr>
<td>07C:137</td>
<td>Introduction to Educating Gifted Students</td>
<td>3 s.h.</td>
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<td>Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as 07U:137.</td>
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<tr>
<td>07C:145</td>
<td>Marriage and Family Interaction</td>
<td>3 s.h.</td>
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<td>Contemporary American marriage, family relationships; mate selection.</td>
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<tr>
<td>07C:162</td>
<td>Introduction to Marriage and Family Counseling and Psychotherapy</td>
<td>3 s.h.</td>
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</tbody>
</table>
Evolution of the family therapy movement and issues related to functional and dysfunctional family systems; significant models of family therapy and specific techniques.

**07C:175 Motivational Interviewing**
Motivational Interviewing (Miller & Rollnick) and the stages of change model.

**07C:176 Child Abuse: Assessment, Intervention, and Advocacy**
Preparation for work involving abused children or child abuse issues; appropriate for careers in counseling, education, health sciences, law, psychology, social work, and so forth; interactive approach.

**07C:178 Microcounseling**
Basic skills of listening, responding, empathy, focus; advanced skills of meaning, confrontation, reframing, directives, action skills.

**07C:180 Topical Seminar for Helping Professionals**
Topics for the continuing education of counselors and related professionals.

**07C:181 ePortfolio Production**
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Prerequisites: able to perform basic computer functions and use a World Wide Web browser. Same as 07E:181, 07P:181, 07S:181, 07U:181, 07X:181.

**07C:182 Workshop for Helping Professionals**
One-week workshop; students choose a topic for community practitioners working with or interested in counseling individuals, groups, families, organizations.

**07C:185 Introduction to Substance Abuse**
Theories of addiction and pharmacology of psychoactive drugs; legal, familial, biological, multicultural, historical issues related to substance use and misuse.

**07C:187 Introduction to Assistive Technology**
How assistive technology can be used for attainment of goals in education or work. Same as 07U:187.

**07C:188 Practicum in Teaching and Curriculum Development in Gifted Education**
Experience in developing course materials for classes offered through the Belin-Blank Center for Gifted Education. Same as 07E:188, 07S:188, 07U:188.

**07C:190 Group Processes for Related Professions**
Small-group procedures for personal and organizational development in educational settings; discussions of theoretical and ethical issues, multicultural considerations, and research findings supplemented with demonstrations; participation in a personal growth group.

**07C:192 Group Leadership in Human Sexuality**
How to teach human sexuality; how to help students achieve an open-minded yet responsible attitude toward their own and others’ sexuality. Prerequisite: 07C:130.

**07C:193 Individual Instruction--Undergraduate**
Prerequisite: consent of instructor.

**07C:194 Interpersonal Effectiveness**
Paradigms and techniques that enhance interpersonal relationship skills.

**07C:195 Ethics in Human Relations and Counseling**
Morality and ethics; ethical issues; models and techniques for effective ethical decision making in personal and professional interactions.

**07C:197 Citizenship in a Multicultural Society**
Human relationships in the context of societal oppressions such as racism, sexism, able-bodyism, and heterosexism.
07C:198 Leadership and Public Service 1-3 s.h.
Preparation for providing public service to a local community; leadership skills for effective mentoring of children in grades 6-10.

07C:199 Counseling for Related Professions 3 s.h.
Counseling theories and techniques; ethical and multicultural considerations; small-group discussions, demonstrations, lectures.

07C:200 Professional School Counselor 3 s.h.
Professional identity of school counselors, K-12 school counseling program delivery systems, legal and ethical issues. Prerequisite: admission to school counseling program or consent of instructor.

07C:201 Introduction to Counseling and the Counseling Profession 1 s.h.
Overview of the counseling profession and standards of practice for counselors-in-training.

07C:202 Introduction to Group Counseling 3 s.h.
Research, theory, ethics, planning, and practice in group counseling; leadership styles and multicultural considerations; group participation. Prerequisites: 07C:221; counseling, rehabilitation, and student development enrollment; and consent of instructor. Corequisite: 07C:278.

07C:203 Career Development 3 s.h.
Preparation for counselors and student affairs professionals; career development concepts and theories, family and work, career counseling goals and objectives, exemplary techniques and materials, career program planning, evaluation procedures. Prerequisite: counseling, rehabilitation, and student development enrollment or consent of instructor.

07C:204 School Culture and Classroom Management for School Counselors 3 s.h.
American public elementary and secondary schools and the school counselor's role; classroom management for school counselors.

07C:210 Rehabilitation Client Assessment 3 s.h.
Process and practice of assessing persons with disabilities for rehabilitation plan development and decision making; multicultural and ethical considerations.

07C:221 Theories of Counseling and Human Development Across the Life Span 3 s.h.
Philosophical bases, ethical considerations, processes, issues, multicultural and life-span developmental considerations in counseling theories and techniques. Prerequisite: counseling, rehabilitation, and student development M.A. enrollment or consent of instructor.

07C:222 Counseling Children and Adolescents in Schools 3 s.h.
Theory and practice of school-based counseling interventions; child and adolescent development; prevention; special topics. Prerequisite: 07C:221 or 07C:278 or consent of instructor.

07C:223 Counseling Gifted and Talented Students 3 s.h.
Learning theories and best practices related to school counseling of gifted and talented students; academic, career, and personal/social development. Prerequisite: 07C:137.

07C:226 Assessment of Giftedness 3 s.h.
Training and practice in assessment of gifted children. Same as 07P:226.

07C:230 School Counseling Program Leadership and Management 3 s.h.
Comprehensive K-12 school counseling program components and structures; program leadership, planning, accountability; behavioral consultation and collaboration; ethical, multicultural, family considerations. Corequisite: 07C:321 or 07C:322.

07C:237 Seminar in Gifted Education 2-3 s.h.
Teaching and counseling needs of gifted students K-12; intensive 10-day residential program. Prerequisites: work as teacher with Belin Fellowship and consent of instructor.

07C:238 Advanced Seminar in Gifted Education 1 s.h.
Supervisory, administrative, and research issues; fellowships for seminar participants. Prerequisites: 07C:237 and consent of instructor.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07C:241</td>
<td>Introduction to Rehabilitation Counseling and Case Management</td>
<td>3 s.h.</td>
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<td>Historical, philosophical, legislative, societal, and multicultural overview</td>
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<td>of rehabilitation process and practice in community-based settings; roles</td>
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<td>of rehabilitation professionals, nature of rehabilitation agencies,</td>
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<td>resources, contemporary issues and ethics.</td>
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<tr>
<td>07C:247</td>
<td>Medical Aspects of Disability</td>
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<td>Medical evaluation as part of the rehabilitation process; body systems,</td>
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<td>medical terminology, medical description of disabilities; functional</td>
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<td>limitations; projection of potential for rehabilitation applied to planning</td>
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<td>and placement.</td>
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<td>07C:248</td>
<td>Diagnosis and Treatment Planning for Psychiatric Rehabilitation</td>
<td>3 s.h.</td>
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<td>Psychiatric conditions, their diagnostic criteria using the DSM-IV-TR,</td>
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<td>treatment planning considerations; medical and psychiastic rehabilitation</td>
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<td>models, interrelationship in providing services to persons with psychiatric</td>
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<td>disabilities; functional assessment and client-driven rehabilitation</td>
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<td>planning for community reintegration. Prerequisite: counseling, rehabilitation,</td>
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<td>and student development enrollment or consent of instructor.</td>
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<td>07C:249</td>
<td>Psychiatric Disorders and Interventions</td>
<td>3 s.h.</td>
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<td>Description, classification, and theoretical perspectives related to</td>
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<td>psychiatric disorders; models of intervention in community-based settings.</td>
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<td>07C:250</td>
<td>Multiculturalism in Helping Professions</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Theory and application of multicultural competency in the helping professions;</td>
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<td>ethical treatment of clients in the context of a multiculturally diverse</td>
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<td>society; knowledge, skill, self-awareness components relevant for helping</td>
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<td></td>
<td>practitioners. Prerequisite: counseling, rehabilitation, and student</td>
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<td></td>
<td>development enrollment or consent of instructor.</td>
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<tr>
<td>07C:254</td>
<td>Assessment and Appraisal</td>
<td>3 s.h.</td>
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<td></td>
<td>Didactic experiences related to individual and group assessment and</td>
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<td></td>
<td>appraisal; for school professionals.</td>
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<tr>
<td>07C:255</td>
<td>Advanced Career Development and Counseling</td>
<td>3 s.h.</td>
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<td></td>
<td>Major concepts and research evidence about life-span vocational behavior;</td>
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<td></td>
<td>theories of vocational choice, adjustment, development in a multicultural</td>
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<td>world.</td>
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<td>07C:256</td>
<td>Action Research: School-Based Field Research</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Field-based research experiences in school settings; students</td>
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<td></td>
<td>conceptualize, design, conduct, and articulate school-based research</td>
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<td></td>
<td>findings. Prerequisite: 07C:254 or consent of instructor.</td>
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<tr>
<td>07C:262</td>
<td>Marriage and Family Counseling and Psychotherapy</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to counseling theory, ethics, and techniques as applied to</td>
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<td></td>
<td>problems of marriage and the family over the life span; multicultural</td>
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<td></td>
<td>considerations. Prerequisites: advanced graduate standing and consent of</td>
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<tr>
<td></td>
<td>instructor. Recommended: 07C:178 and 07C:221.</td>
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<tr>
<td>07C:263</td>
<td>Consultation Theory and Practice</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Same as 07P:263.</td>
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<tr>
<td>07C:270</td>
<td>Issues and Ethics in Counseling</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Ethical standards and decision making; current issues; ethical, legal, and</td>
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<td></td>
<td>multicultural considerations for counseling in agencies and schools;</td>
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<td>emphasis on professional practice.</td>
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<tr>
<td>07C:278</td>
<td>Applied Microcounseling</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Development of basic and advanced counseling skills; preparation for work in</td>
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<td>education and community settings.</td>
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<td>07C:280</td>
<td>Topical Seminar in CRSD</td>
<td>arr.</td>
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<td></td>
<td>Special topics dealing with contemporary problems of concern to counselors</td>
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<tr>
<td></td>
<td>in specific settings. Repeatable.</td>
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<tr>
<td>07C:293</td>
<td>Individual Instruction--Graduate</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Prerequisite: consent of instructor.</td>
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<tr>
<td>07C:300</td>
<td>Practicum in School Counseling</td>
<td>3 s.h.</td>
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</table>
Supervised experience counseling and consulting in elementary and secondary school settings. Prerequisite: completion of school counseling core courses.

**07C:311 Practicum in Counseling and Psychological Services for Gifted Students**

1-6 s.h.
For graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Prerequisites: 07C:178 or equivalent and consent of instructor. Same as 07P:311.

**07C:321 Internship in Elementary School Counseling**

3 s.h.
Supervised placement in an elementary school setting; performance of tasks, responsibilities of an elementary school counselor. Prerequisites: 07C:300, completion of all required school counseling courses, and consent of instructor.

**07C:322 Internship in Secondary School Counseling**

3 s.h.
Supervised placement in a secondary school setting; performance of tasks, responsibilities of a secondary school counselor. Prerequisites: 07C:300, completion of all required school counseling courses, and consent of instructor.

**07C:330 Introduction to Student Services**

3 s.h.
Foundations of student affairs work; overview of institutional cultures, legal issues, ethical principles, standards of practice in student affairs.

**07C:331 College Students and Their Environments**

3 s.h.
Characteristics of college students and issues they face; students' institutional, social, cultural environments; impact of environments on student learning, development.

**07C:332 College Student Psychosocial and Identity Development**

3 s.h.
Theoretical models of psychosocial and identity development in college students; applications to student affairs work. Prerequisite: 07C:331 or equivalent.

**07C:333 Practicum in Student Services**

arr.
Supervised experience in college student service agencies. Repeatable.

**07C:334 College Student Learning, Cognitive, and Moral Development**

3 s.h.
Learning and development in college students; theoretical models of learning, cognitive development, moral development; applications to student affairs work.

**07C:335 Administration of Student Services**

3 s.h.
Administrative structures and processes, contexts and principles of effective student services practice, research and assessment in student services. Prerequisite: 07C:330 or equivalent.

**07C:336 Impact of College on Students**

3 s.h.
Introduction to literature; career and economic returns, values and attitudes, learning and cognitive development, assessment and methodological issues of studying college outcomes. Prerequisite: 07B:206 or equivalent or consent of instructor.

**07C:337 Administration Theory in Student Affairs**

3 s.h.
Issues and problems in student affairs administration; theories of organization, administration, leadership. Prerequisite: enrollment in student affairs administration and research Ph.D. program and consent of instructor.

**07C:338 Essentials of Qualitative Inquiry**

3 s.h.
Principles, processes of qualitative research in education; methods of design, data collection and analysis, interpretation, trustworthiness. Prerequisites: Ph.D. enrollment, introductory research course, and consent of instructor.

**07C:341 Job Development Placement and Follow-up**

3 s.h.
Obtaining appropriate jobs for individuals with disabilities who have received rehabilitation services; client, counselor, employer, job specifications. Prerequisite: consent of instructor.

**07C:342 Psychosocial and Developmental Aspects**

3 s.h.
Dynamics of adjustment and coping for persons with chronic illness or those with disabilities through the life span; somatopsychological, psychosocial, and developmental perspectives on disability.
07C:347 Home/School/Community: System Interventions 3 s.h.
Interventions used by school and support system personnel; focus on work with parents, siblings. Same as 07P:347.

07C:348 Prepracticum in Rehabilitation Counseling and Case Management arr.
Counseling laboratory to promote knowledge, skills, and awareness of effective and ethical counseling methods, and fundamentals of case management. Prerequisites: 07C:221 and 07C:278.

07C:349 Practicum in Rehabilitation Counseling and Case Management arr.
Experience in a community agency serving individuals with disabilities, supervised by agency and University personnel. Prerequisite: 07C:348.

07C:350 Advanced Practicum in Rehabilitation Counseling and Case Management 3 s.h.
Experience to enhance competency in agencies and with persons represented in the student's specialty area. Prerequisite: 07C:349.

07C:351 Advanced Practicum in Mental Health and Substance Abuse 3 s.h.
Supervised experience counseling clients with substance-related and/or mental health problems; practical application of theory and ethics through individual, group, family, community counseling. Prerequisites: 07C:349 and consent of instructor.

07C:352 Internship in Rehabilitation Counseling and Case Management arr.
Full-time clinical experience in rehabilitation settings; training in wide range of rehabilitation activities, under supervision of certified rehabilitation counselor (CRC). Prerequisite: 07C:350 or 07C:351.

07C:353 Advanced Counseling and Psychotherapy 3 s.h.
Theories, techniques, and ethics of counseling clients with personal and interpersonal problems; ethical and multicultural considerations. Prerequisite: consent of instructor.

07C:357 Advanced Group Counseling and Psychotherapy 3 s.h.
Theories and techniques of group counseling and psychotherapy; integration of theory, experience, and research in group counseling; ethical and multicultural considerations. Prerequisite: consent of instructor.

07C:360 Advanced Practicum in Counseling arr.
Supervised practice in counseling; intensive analysis of counselor ethics, styles, methods. Prerequisites: 07C:221 or equivalent, Ph.D. enrollment, advanced graduate standing in counselor education, counseling introductory practicum, and consent of instructor. Pre- or corequisite: 07C:249 or equivalent for Rehabilitation Counselor Education student.

07C:363 Capstone Seminar in Student Services 3 s.h.
Synthesis, integration, and application of prior course work on college students and their environments, student learning and development, student affairs administration, counseling and helping skills; focus on program development and implementation, environmental and needs assessment, program evaluation, student group advising, transition to professional student affairs roles; internship supervision; for advanced M.A. students in student development in postsecondary education. Repeatable. Prerequisites: 07C:250, 07C:333, and consent of instructor.

07C:369 Advanced Seminar in Rehabilitation Counseling 3 s.h.
Philosophy, theory, research base, practice of rehabilitation counseling, psychology; ethical and multicultural considerations; relationship to disability studies; psychological aspects of disability, client assessment, history, systems, contemporary issues.

07C:380 Practicum in College Teaching arr.
Supervised college teaching experience in counselor education courses; teaching in collaboration with faculty, observation and critiques of teaching, participation in course planning and evaluation procedures; ethical and multicultural considerations. Prerequisites: graduate standing and consent of instructor.

07C:385 Teaching and Learning in Higher Education 3 s.h.
Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07B:385, 07P:385, 07S:384, 650:385.

07C:393 M.A. Thesis arr.
Prerequisite: consent of instructor.
07C:394 M.A. Equivalency Research
Preparation for comprehensive examination. Prerequisite: consent of instructor.

07C:400 Seminar: Ethics and Issues in Counseling
Ethical, professional, and contemporary issues in counseling practice, education, and research. Prerequisite: counseling, rehabilitation, and student development Ph.D. enrollment or consent of instructor.

07C:431 Seminar: Research on College Students
College student learning and development, outcomes, persistence. Prerequisites: 07B:206 or equivalent; 07C:336 or consent of instructor; 07C:338 or equivalent; 07P:243 or equivalent; and enrollment in student affairs administration and research Ph.D. program.

07C:432 Seminar: Student Affairs Practice
Institutional cultures, student affairs leadership, organizational structures. Prerequisites: 07B:206, 07C:338, and 07P:243, or equivalents; 07C:335 and 07C:336, or consent of instructor; and enrollment in student affairs administration and research Ph.D. program.

07C:433 Seminar: Current Issues in Student Affairs
Critical and current issues in student affairs professional practice. Prerequisites: enrollment in student affairs administration and research Ph.D. program, and consent of instructor.

07C:450 Advanced Social Psychology of Disability
Disability issues from individual and societal perspectives; psychosocial aspects of disability and disability studies; seminar. Prerequisite: Ph.D. enrollment.

07C:451 Advanced Multiculturalism
Impact of culture, race, ethnicity, and intersections of identity on counseling in higher education and student affairs settings. Prerequisite: 07C:250 or consent of instructor.

07C:454 Supervision Theory and Practice
Conceptual models, ethics, multicultural considerations, research, and program design for counselor supervision and consultation.

07C:455 Practicum in Clinical Supervision
Supervision of students enrolled in counseling practicum. Prerequisites: 07C:454 or equivalent, and consent of instructor.

07C:456 Seminar: Research in Rehabilitation Counselor Education
Opportunity to acquire skills in varied aspects of research and scholarly work.

07C:457 Seminar: Professional Orientation to Counselor Education and Supervision
Professional orientation issues in counselor education and supervision; related documents, bylaws, professional expectations.

07C:458 Seminar: Current Issues and Trends in Counselor Education and Supervision
Recent trends, including debates and findings in literature related to best practices for the profession.

07C:459 Seminar: Leadership and Advocacy in Counselor Education and Supervision
Leadership principles and theories, including applications to counselor education; student leadership potential and skills explored through self-reflective model.

07C:460 Seminar: Research in Counseling
Methods, examples, ethics, multicultural issues, problems of counseling research. Prerequisite: Ph.D. enrollment or consent of instructor.

07C:461 Practicum in Research
Experience designing and implementing research relevant to student's plan of study, under supervision of counseling, rehabilitation, and student development faculty member. Repeatable. Prerequisite: consent of instructor.
07C:465 Internship in Counselor Education
1-3 s.h.
Supervised experience in professional counseling, counselor supervision, consultation, teaching counseling; field placement and seminar. Prerequisite: consent of instructor.

07C:493 Ph.D. Thesis
arr.
Prerequisite: consent of instructor.
Educational Policy and Leadership Studies

Chair: Christopher C. Morphew
Program coordinator, educational administration: Carolyn L. Wanat
Program coordinator, higher education: Michael B. Paulsen
Program coordinator, social foundations of education: Christine L. McCarthy
Professors: David B. Bills, Sandra B. Damico, Leila B. Helms, Alan B. Henkin, Christopher C. Morphew, Ernest T. Pascarella, Michael B. Paulsen, Elizabeth J. Whitt, Donald B. Yarbrough
Professors emeriti: Larry D. Bartlett, George A. Chambers, Walter J. Foley, Jerry N. Kuhn, Bradley M. Loomer, H. Bradley Sagen
Associate professors: Deborah L. Liddell, Christine L. McCarthy, Scott F. McNabb, Christine A. Ogren, Chet S. Rzonca, Katrina Sanders, Carolyn L. Wanat, Sherry K. Watt
Associate professors emeriti: Robert E. Engel, Ray A. Muston, Sara C. Wolfson
Clinical associate professors: Marcus J. Haack, Susan M. Lagos Lavenz, Anne M. Sullivan
Assistant professor: Elizabeth Hollingworth
Assistant professor: Charles M. Mason
Adjunct assistant professor: Dorothy M. Persson
Adjunct assistant professor emeritus: Wendell C. Boersma
Adjunct clinical assistant professors: John R. Bacon, Kathryn J. Coe, Kathleen M. Erusha, William J. Freeburg, Nancy H. Gardner, Karla Grant McClure, Richard Grimoskas, Jeffrey M. Gustason, Christopher L. Habben, Robert L. Hoyt, Lisa Kiefker Havercamp, John A. Krumbholz, Brian H. Lehman, Tina F. Monroe, Sara L. Oswald, Nancy G. Row, K. Terry Sherer, Gregg Shoultz
Lecturer: Noga O'Connor
Graduate degrees: M.A., Ed.S., Ph.D.
Web site: http://www.education.uiowa.edu/epls/

The Department of Educational Policy and Leadership Studies offers programs that prepare administrators, professional personnel, teachers, and researchers in the fields of educational administration, higher education, and social foundations. The academic programs in the department reflect this diversity of purpose.

Graduate Programs

The department offers an M.A., Ed.S., and Ph.D. in educational administration; an Ed.S. in school curriculum and assessment policy; an Ed.S. in special education administration; an M.A. and Ph.D. in social foundations of education; and an M.A., Ed.S., and Ph.D. in higher education. Each degree program is described below, with information about degree requirements and application for admission.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

Educational Administration

Study in educational administration prepares individuals for leadership positions. The department offers the M.A., Ed.S., and Ph.D. in educational administration as well as administrative licensure. It also offers joint programs with other College of Education departments and with other colleges at the University.

Licensure

To be eligible for recommendation by The University of Iowa for licensure in Iowa as a principal or superintendent/area education agency administrator, students must complete the appropriate program. The specific requirements for each program are available from the Department of Educational Policy and Leadership Studies and the Office of Teacher Education and Student Services.

Students who hold an M.A. must satisfy all core requirements and must complete at The University of Iowa the minimum semester-hour program for each licensure level they seek. Because each administrative license has specific requirements, candidates are required to plan their programs with their advisors' approval.

M.A. in Educational Administration

The Master of Arts in educational administration prepares individuals for appointments as school principals and central office administrators, and for positions in area education agencies and state departments of education. The M.A. is a nonthesis program that requires a minimum of 36 s.h. of graduate credit.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) General Test scores, an aptitude survey, an essay demonstrating writing ability, and other
evidence of academic ability and professional promise.

CORE REQUIREMENTS

With the aid of an advisor, each M.A. student prepares a plan of study that includes the following core requirements.

- 07B:200 Educational Leadership Technology 1 s.h.
- 07B:201 Foundations of School Administration 3 s.h.
- 07B:236 Administration of Students with Special Needs 3 s.h.
- 07B:242 Research for Effective School Leaders 3 s.h.
- 07B:260 Contemporary Management Strategies for the K-12 Principal 3 s.h.
- 07B:285 School and Community Relationships 3 s.h.
- 07B:298 Legal Aspects of School Personnel 3 s.h.
- 07B:381 Analysis and Appraisal of Curriculum 3 s.h.
- 07B:383 Supervision and Evaluation 3 s.h.

For Iowa licensure as a principal, students must meet the human relations requirement of the State of Iowa. Students must complete the core requirements listed above and required clinical courses (07B:400 Early Childhood Leadership Clinical, 07B:401 Elementary Leadership Clinical, 07B:402 Secondary Leadership Clinical, and 07B:403 Special Education Leadership Clinical). Candidates may choose electives approved by the advisor.

COMPREHENSIVE EXAMINATION

The M.A. comprehensive examination consists of a three-hour examination and a presentation of the student's ePortfolio. Students must be registered in the Graduate College during their comprehensive examination semester if they plan to graduate at the end of that semester.

Ed.S. in Educational Administration

The Educational Specialist in educational administration prepares candidates for administrative appointments in school districts, area education agencies, state departments of education, and the U.S. Department of Education. The Ed.S. also helps school administrators upgrade their administrative skills to the level of superintendent of schools. Students seeking licensure plan a program approved by an advisor to meet State of Iowa licensure requirements.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. Factors considered include recommendations, grade-point average, Graduate Record Examination (GRE) General Test scores, and other evidence of academic ability and professional promise.

CORE REQUIREMENTS

- 07B:224 Organizational Theory and Administrative Behavior 3 s.h.
  or
- 07B:297 Administrative Leadership Theory 3 s.h.

- 07B:291 Administration of Educational Programs and Personnel 3 s.h.
- 07B:294 Politics and Economics of Financing Public Education 3 s.h.
- 07B:299 Legal Aspects of School Administration 2-3 s.h.
- 07B:395 Educational Specialist Research arr.

PROGRAM EMPHASIS

Students must complete their remaining minimum required semester hours (minus electives) in one of the following emphasis areas. Courses listed for each emphasis area are required.

Elementary School Administration

- 07P:150 Introduction to Educational Measurement 3 s.h.
Secondary School Administration

07P:150 Introduction to Educational Measurement 3 s.h.

General School Administration

07B:205 Collective Bargaining in Education 3 s.h.
07B:295 Financial Management of Local School Systems 3 s.h.
07B:404 Central Administration Clinical 1-3 s.h.
07P:143 Introduction to Statistical Methods 3 s.h.

ELECTIVES

Students choose electives to complete the 62 s.h. required for the Ed.S. They may choose electives for specialization in fields such as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

RESEARCH

All Ed.S. students must complete a formal research paper (4 s.h.) that deals with a specific problem in school administration or instruction.

COMPREHENSIVE EXAMINATION

The Ed.S. comprehensive examination consists of two 3-hour examinations: one in educational administration and the other in a specialized area of educational administration or a related field. Students must be registered in the Graduate College during their comprehensive examination semester if they plan to graduate at the end of that semester.

Ed.S. in School Curriculum and Assessment Policy

The interdisciplinary Educational Specialist in school curriculum and assessment policy trains graduate students to become school leaders who know how to use assessment information for accountability purposes and curriculum evaluation. The program offers concentrations in policy, measurement and statistics, and curriculum and draws on course work from across the College of Education. Graduates are qualified to serve as educational leaders in the areas of school policy, assessment, and curriculum at federal, state, and district levels.

The Ed.S. in school curriculum and assessment policy requires 36 s.h. of graduate credit beyond the master's degree, although a student's academic background experience, needs, and interests may affect the amount of credit required.

Ed.S. in Special Education Administration

The Education Specialist program in special education administration is offered jointly with the Department of Teaching and Learning.

The program provides sufficient training and experience to enable graduates to obtain entry-level positions in special education administration. The career focus of the program is on middle management positions such as supervisor and assistant director. The program requires a minimum of 62 s.h. of graduate credit. Successful completion qualifies the student for Iowa licensure as a special education director (State of Iowa Endorsement 239). It also qualifies the student for general administration licensure (State of Iowa Endorsement 171).

Admission to the program is limited by available resources. Three to five new students are admitted each year. Applicants must meet the admission requirements of the Graduate College. They must hold a master's degree, licensure in an area of teaching exceptional children, qualification for a consultant's endorsement, and classroom teaching experience or equivalent.

Ph.D. in Educational Administration

The Doctor of Philosophy in educational administration prepares students for leadership positions at all levels of education and administrative practice (school administration, college and university teaching and research). The program is flexible, with individually designed study plans that include course work in related disciplines and research pursuits. Integration of theory and practice is emphasized.

Ph.D. students are expected to achieve competence in educational program planning, finance and governance, leadership theory, evaluation, and research methodologies that include statistical methods. They also must gain
expertise in areas of specialized program and personnel policy analysis.

The Ph.D. in educational administration requires a minimum of 90 s.h. of graduate credit. Course content includes prerequisites, a core of common competencies, at least one specialization in the administrative field, cognate study outside the college, research skill development, and a research dissertation.

Common specialization areas are general administration, elementary school administration, secondary school administration, systems analysis and research, school finance, curriculum, legal aspects, theory, and school personnel.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission decisions are made through a faculty review process. The program admits a maximum of 10 students each fall semester or preceding summer session. Admission is based on several factors, including recommendations from college or university faculty that speak to the candidate's scholarship and potential for academic success; cumulative grade-point average; Graduate Record Examination (GRE) General Test scores; and a written statement addressing one of several topics (personal philosophy of education, steps in the professionalization of teaching, current educational issues and their administrative impact, or the role of administration in educational organizations).

Admission is for summer or fall entry; application deadline is December 1. Applicants are notified of admission decisions by February 15.

CORE COURSES

Core courses provide the background necessary for further study, including research in specialized areas. They also develop competencies common to the functional areas of school administration. The four core courses integrate planning of educational personnel programs, analysis of the politics and economics of governance and the financing of public education, evaluation of administrative leadership theories, and options in research methodology and quantitative analysis.

Each core course carries 3 s.h. of credit, is open only to Ed.S. and Ph.D. students, and requires the development and practice of interaction, reading, and writing skills.

Seminars designed primarily for doctoral candidates are offered to supplement each functional core area. Student scholarship is reflected in writing, reading, and research in doctoral seminars.

COGNATES

Students who specialize in administration must complete a 9 s.h. cognate outside the College of Education with the advisor's approval.

Required Research Courses

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

COMPREHENSIVE EXAMINATION

Ph.D. students must satisfactorily complete a six-hour comprehensive examination in the six common areas of educational administration and a three-hour examination based on the student's specialization areas and approved by the student's advisor and the department chair. To be eligible to take the Ph.D. comprehensive examination, students must be completing or must have completed the doctoral core courses and the research tool requirements. Students must be registered in the Graduate College during their comprehensive examination semester. They may not register for more than 3 s.h. of Ph.D. thesis credit that semester, and they may not earn dissertation credit before that semester. No Ph.D. comprehensive examinations are held during summer sessions.

Students pursuing doctoral programs in areas other than educational administration who want to use some aspect of the educational administration program as a concentration area for a comprehensive examination should consult with an advisor in the Department of Educational Policy and Leadership Studies early in their program of study.

Any specialization area open to doctoral students in educational administration is open to other doctoral students who meet the necessary prerequisites for specific courses. Students should complete approximately 12 s.h. in one specialization area before requesting a comprehensive examination. If the student decides to use a field within educational administration as a related comprehensive area, he or she should plan to complete approximately 18 s.h.
of diversified course work in educational administration.

**RESEARCH DISSERTATION**

All students must write a formal dissertation prospectus and submit it for approval first by their dissertation advisor and then by their doctoral committee. The student and advisor determine when the prospectus is complete. The prospectus committee meets to make a final evaluation of the prospectus and to decide whether to grant the student approval to proceed. Dissertation prospectus meetings are not held during summer sessions.

Students must accumulate 10 s.h. of dissertation research credit. The doctoral program culminates with final oral defense of the dissertation. Students must be registered at The University of Iowa during the session in which they graduate.

**RESIDENCY**

Each doctoral student must successfully complete two semesters (minimum of 9 s.h. on campus) to fulfill the residency requirement. The following sample Ph.D. program is based on the required minimum of 90 s.h. and assumes that students enter with an M.A. and 36 s.h. of graduate credit.

**Core Requirements**

- 07B:206 Research Process and Design 3 s.h.
  or 07B:370 Quantitative Methods for Policy Analysis 3 s.h.
- 07B:224 Organizational Theory and Administrative Behavior 3 s.h.
  or 07B:297 Administrative Leadership Theory 3 s.h.
- 07B:291 Administration of Educational Programs and Personnel 3 s.h.
- 07B:294 Politics and Economics of Financing Public Education 3 s.h.

**Other Required Courses**

- 07X:150 Introduction to Educational Research (taken during first year in program) 3 s.h.
- Cognate courses selected with approval of advisor 9 s.h.
- Research design and/or statistics and/or qualitative research courses 15 s.h.
- Thesis 10 s.h.

**Social Foundations of Education**

Social foundations of education is an interdisciplinary program designed to enhance students' ability to analyze the influence of social, historical, and philosophical forces on the formal educational enterprise. Major areas of specialization are comparative/international education, history of education, philosophy of education, policy studies, and sociology of education.

Applicants must meet the admission requirements of the Graduate College. A personal interview with one or more members of the social foundations faculty may be required. An undergraduate and/or graduate emphasis in philosophy, the humanities, or the social sciences is strongly recommended. Students must maintain an overall g.p.a. of at least 3.00 to remain in the program.

**M.A. in Social Foundations of Education**

The Master of Arts in social foundations of education requires a minimum of 32 s.h. of graduate credit. Students complete at least 18 s.h. in social foundations, which should include at least two courses each in three of the five areas of specialization. The remainder of the required course work must be in a concentration area appropriate to the student's career and academic goals. For example, students interested in philosophy of education usually take courses offered by the Department of Philosophy. Students are not required to write a thesis.

M.A. students must satisfactorily complete a six-hour comprehensive examination covering their three areas of study in the social foundations program and their outside area. The examining committee may elect to hold an oral
examination after the exam.

**Ph.D. in Social Foundations of Education**

The Doctor of Philosophy in social foundations of education requires a minimum of 90 s.h. of graduate credit. Students are required to take a minimum of 24 s.h. in social foundations, which must include at least 12 s.h. in the major specialization area and a minimum of 6 s.h. from each of two additional areas. In addition, students must take at least 9 s.h. of related course work in a concentration area.

Approximately one-third to one-half (30-45 s.h.) of each student's program is devoted to in-depth course work in disciplines such as history, philosophy, political science, or sociology. These sequences are individually planned by the student with the aid of his or her advisor and suggestions from the appropriate department(s).

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

Five required research courses are chosen in accordance with the student's research interests and program. The first must be in quantitative methodologies (e.g., graduate-level statistics, microcomputing, demographic analysis); the second must be in qualitative analysis (e.g., philosophy of science, philosophy of social science, historiography, qualitative or case study methodologies, foreign language); and the third in either quantitative methodologies or qualitative analysis. All students must successfully complete 07B:155 Critical Thinking and 07B:206 Research Process and Design.

Students usually earn 12-15 s.h. for dissertation research.

**COMPREHENSIVE EXAMINATION**

Ph.D. students must satisfactorily complete an extensive comprehensive examination, including three examinations. The first is in the major area of study; the second is in the other two concentration areas; and the third is in the outside area of study and is prepared by faculty members outside the social foundations program. The exams are followed by an oral examination.

**RESEARCH DISSERTATION**

All Ph.D. students must write a formal dissertation prospectus and submit it for approval first by their advisor and then by the members of their doctoral committee. Students and their advisors determine when the prospectus is complete.

Students must earn 12 s.h. of dissertation research credit. The doctoral program culminates with a final oral defense of the dissertation. Students must be registered at The University of Iowa during the session in which they graduate.

**RESIDENCY**

Each doctoral student must successfully complete two semesters (a minimum of 9 s.h. per semester) on campus to fulfill the residency requirement.

**Higher Education**

Advanced study in higher education draws upon diverse perspectives from varied disciplines and professional fields to analyze critical issues and policies and their effects on students, faculty, administrators, staff, and other members of the higher education community. It also explores the complex interactive relationships among institutions of higher education, the external environment, and society at large.

The department's graduate programs in higher education prepare professionals and scholar-practitioners to serve as administrators, researchers, teachers, specialists, and analysts in institutions of higher and postsecondary education and in related public and private agencies. The programs provide opportunities for concentrated study in organization and administration; policy in higher education; student affairs administration; teaching, learning, and curriculum in higher education; and foundations of higher education.

**M.A. in Higher Education**

The Master of Arts in higher education prepares students for entry- and mid-level administrative, management, and policy positions in two- and four-year institutions. It is appropriate preparation for positions such as assistant dean, assistant to the president, director, in-service director, and department or program chair in selected areas. It is a nonthesis program.
ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission is based on grade-point average, Graduate Record Examination (GRE) General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Applications must be submitted well in advance of the intended semester of admission.

REQUIREMENTS

The M.A. in higher education requires a minimum of 32 s.h. of graduate credit. Students take six hours of written examinations based on the core, concentration, and specialization, according to the plan of study developed individually for each student.

Concentration areas in which exams may be written include administrative practices, policy studies, and specializations developed in consultation with the advisor. Students majoring in another field who want to complete a related field in higher education and to be eligible to write a related-field examination should consult with a higher education faculty member early in their study. Plans of study are developed individually.

Ed.S. in Higher Education

The Educational Specialist in higher education provides advanced graduate study in administration, policy studies, and specializations developed in consultation with the advisor. The Ed.S. also may be awarded upon completion of a joint program of graduate work in higher education and an academic field, or upon completion of a higher education sequence following a master's degree program.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Admission is based on grade-point average, GRE General Test scores, and promise for professional growth. Transcripts, GRE scores, three letters of recommendation, and a statement of educational goals are required.

Applications must be submitted well in advance of the intended semester of admission.

REQUIREMENTS

The Ed.S. in higher education requires 60 s.h. of graduate credit. The program of study must include at least 18 s.h. in professional education and related fields, including an appropriate structured internship determined in consultation with the advisor; at least 28 s.h. in the student's specialization area and 10 s.h. of electives, all approved by the advisor; and 4 s.h. of research credit in 07B:395 Educational Specialist Research.

COMPREHENSIVE EXAMINATION

The comprehensive examination consists of two 3-hour written exams: one covering the field of higher education and one covering the student's concentration area. The written exams may be followed by an oral exam.

RELATED FIELD

Students majoring in another field who want to complete a related field in higher education should consult with a higher education faculty member early in their study. Plans of study are developed individually.

TEACHING INTERNSHIP

Program participants teach half-time for a full semester at a cooperating community college under the supervision of an experienced faculty member in that college and with field supervision from The University of Iowa. Interns participate in the academic life of the host community college, and they often gather data for their Ed.S. research project during the internship. Participants must be willing to travel to a community college and reside there for the one-semester program.

Ph.D. in Higher Education

The Doctor of Philosophy in higher education prepares faculty and scholar-practitioners for leadership in varied higher education settings. Graduates typically serve in leadership positions in student affairs and academic administration, as graduate faculty at research universities, as leaders in conducting research about college students and higher education, and as policy analysts in postsecondary institutions and public or private agencies.

The program offers concentrations in five areas: student affairs administration; policy in higher education; teaching, learning, and curriculum in higher education; organization and administration of higher education; and foundations of
ADMISSION

Applicants must meet the admission requirements of the Graduate College. Each applicant must submit a personal statement explaining the his or her professional goals, experiences, and research plans; undergraduate and graduate grade-point averages; undergraduate and graduate transcripts; three letters of recommendation; and scores on the Graduate Record Exam (GRE) General Test. Admission is for fall semester entry. Application deadline is January 15 for admission the following fall.

REQUIREMENTS

The Ph.D. in higher education requires 90 s.h. of graduate credit, including a substantive common core (24 s.h.), a research core (18 s.h.), a concentration area (12 s.h.), graduate electives (24 s.h.), and dissertation research (12 s.h.).

Substantive Common Core

The substantive common core is a base of general knowledge base that all students must master, regardless of their career goals and interests. The 24 s.h. core curriculum reflects an important foundational understanding of higher education today. The following courses must be taken at The University of Iowa.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>07B:216</td>
<td>Finance in Higher Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07B:218</td>
<td>The Law and Higher Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07B:220</td>
<td>History and Philosophy of Postsecondary Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07B:221</td>
<td>The College Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07B:224</td>
<td>Organizational Theory and Administrative Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07B:225</td>
<td>Introduction to Public Policymaking</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>07B:240</td>
<td>Topics in Education (when topic is Diversity and Equity in Higher Education)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07C:331</td>
<td>College Students and Their Environments</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Research Core

The research core assures that the student achieves scholarly autonomy and initiative.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with the following research core requirements.

All students take the following three courses, or their equivalent, as approved by the advisor and the course instructor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:206</td>
<td>Research Process and Design</td>
<td>3 s.h.</td>
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<tr>
<td>07C:338</td>
<td>Essentials of Qualitative Inquiry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07X:150</td>
<td>Introduction to Educational Research (taken during first year in program)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

In addition, students and their advisors choose at least three more research courses appropriate to the student's research interests.

Areas of Concentration

The concentration area gives students the opportunity to develop a particular expertise. Students may complete up to 24 s.h. in the program before they must declare a concentration, which they must choose from one of the following five areas: student affairs administration; policy in higher education; teaching, learning, and curriculum in higher education; organization and administration of higher education; and foundations of higher education.

Each concentration has its own course requirements and options.

Graduate Electives

Students choose 24 s.h. of elective graduate course work in consultation with their advisors. The student and his or her advisor may determine that some of the graduate elective work may be drawn from appropriate previous graduate course work that complements other aspects of the student's doctoral program.

Dissertation Research
Students conduct their dissertation research (12 s.h.) under the supervision of their faculty advisor. The program culminates with a final oral defense of the dissertation; see “Dissertation” below.

**COMPREHENSIVE EXAMINATION**

The Ph.D. comprehensive examination consists of a set of four take-home questions with a limited time to respond. Three questions are based on the substantive core, one question is based on the student's concentration, and the research core content is integrated throughout the entire exam.

**DISSERTATION RESEARCH**

The dissertation is a major research study planned in collaboration with the student's advisor. Students must write a formal dissertation proposal and submit it for approval, first to their advisor and then to the members of their doctoral committee. Students and their advisors determine when the proposal is complete. Students must earn 12 s.h. of dissertation research credit. The doctoral program culminates with a final oral defense of the dissertation.

Students must be registered at The University of Iowa each fall and spring semester from the semester in which they complete their comprehensive examination through the semester in which they defend their dissertation and graduate.

**RESIDENCY**

Each doctoral student must successfully complete two semesters (minimum of 9 s.h. each semester) on campus to fulfill the residency requirement.

**Educational Policy and Leadership Studies Courses**

**07B:100 Issues and Policies in Higher Education**
3 s.h.
Development of the idea of a university; selected functions, issues, policies of American higher education.

**07B:101 Professional Seminar: Social Foundations**
1 s.h.
Introduction to the five disciplinary components of social foundations; professional development of social foundations scholars; workshop on dissertation, other student-authored scholarly papers.

**07B:102 History of American Education**
2-3 s.h.
American educational history, with emphasis on conflicting historical interpretations of pivotal events and educational movements; contemporary reform efforts examined in historical perspective.

**07B:104 Education in the Third World**
2-3 s.h.
Educational implications of various development issues, including role of media, and multinational corporations and foreign aid; educational dilemmas currently facing Third World governments.

**07B:110 Administration and Policy in Gifted Education**
2 s.h.
Policy, administrative, evaluation issues in developing and maintaining gifted programs in a school setting; participants develop gifted program and policies for a school; for school executives and coordinators of gifted programs.

**07B:111 Evaluation of Gifted Programs**
1 s.h.
Fundamentals of program evaluation essential for exemplary gifted programs.

**07B:113 Staff Development for Gifted Programs**
1 s.h.
Planning, content, and delivery of staff development regarding gifted students and their needs.

**07B:120 Teaching in a Culturally Diverse Society**
2-3 s.h.
Issues in education and individual educators’ own practice related to increasing cultural, racial, and linguistic diversity; challenges, concerns.

**07B:122 History of School Leadership in the United States**
3 s.h.
History of public school administration; 19th-century crusade of Horace Mann and other common-school reformers, social-efficiency movement of early 20th century; gender issues, parental involvement in history of school leadership.

**07B:123 History of Ethnic/Minority Education**
2-3 s.h.
Educational histories of American ethnic and minority groups; comprehensive understanding of American educational history, context for contemporary educational policy discussions.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:126</td>
<td>Twentieth-Century Educational Movements</td>
<td>2-3 s.h.</td>
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<td></td>
<td>Current educational policy debates concerning diversity and equity, historical roots of these policies; historical context for 20th-century equal education opportunity movements.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>07B:130</td>
<td>Sociology of Education</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Macrosociological perspective of role of education in social systems; impact of formal education on social stratification, social mobility, economic achievement in the United States and selected countries.</td>
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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tr>
<td>07B:134</td>
<td>Education and the World of Work</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Relationship between education and work in individual and organizational behavior, and between educational and economic systems; economics, psychology, sociology, education.</td>
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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>07B:142</td>
<td>Sociology of Higher Education</td>
<td>3 s.h.</td>
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<td></td>
<td>Sociology of education and higher education research combined; inequality and stratification relative to higher education.</td>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>07B:154</td>
<td>Education, Race, and Ethnicity</td>
<td>2-3 s.h.</td>
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<td></td>
<td>Role of education in ethnic and racial stratification in the United States and other nations; influence of variations in family structure, stratification patterns, institutional constraints in formation of educational aspirations and achievement levels. GE: Cultural Diversity.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:155</td>
<td>Critical Thinking</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Formal and informal logic and probabilistic reasoning; focus on construction and critical analysis of arguments; introduction for students planning research in social foundations.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:156</td>
<td>Philosophies of Education</td>
<td>2-5 s.h.</td>
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<tr>
<td></td>
<td>Principal educational philosophers and philosophies that have influenced Western education; emphasis on how philosophical ideas and conflicts have shaped the educational scene.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>07B:157</td>
<td>Ethics in Education</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Major theories of the nature of ethical action and of value judgment; theoretical accounts related to the practical decision making contexts of teaching.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:158</td>
<td>John Dewey and Education</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Dewey's philosophy of instrumentalism, with emphasis on his theories of knowledge, valuation, aesthetics, especially as applied to educational theory and practice.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:165</td>
<td>Introduction to Program and Project Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Skills and knowledge required for conducting evaluations of products, projects, and programs; recent scholarship on evaluation and project management. Same as 07P:165.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:171</td>
<td>The Community College</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Character of community college as a postsecondary institution; functions, students, faculty, control, financing, administration, historical evolution.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:175</td>
<td>Introduction to the Economics of Education</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Economic perspective on the education industry and its educational processes; relationships between education and the economy.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:176</td>
<td>Demographic Techniques for Educational Research</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Basic demographic concepts, techniques, resources; life table analysis, enrollment projections, demographic measurement, shift-share analysis.</td>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:180</td>
<td>Human Relations for the Classroom Teacher</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Influence of social factors such as discrimination, diversity, equity, racism, sexism, and ethnic and socioeconomic pluralism on American schools and classrooms; for teacher education candidates. GE: Cultural Diversity.</td>
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</tr>
</tbody>
</table>
07B:195 Research in Cross-Cultural Settings
Cultural, psychological, logistical issues in conducting research in foreign settings; development of a research plan, recent debates in ethnographic research literature.

07B:200 Educational Leadership Technology
Foundation and skill practice in technology tasks relevant to educational leadership; experience formulating an education leader’s ePortfolio.

07B:201 Foundations of School Administration
Organization and administration of American public education; principles and concepts of leadership and organizations; socioeconomic, political, and professional factors relating to education and school administration.

07B:202 Information Resources
Research strategies, information literacy skills, University of Iowa Libraries and other sources for research.

07B:205 Collective Bargaining in Education
Current status of public sector bargaining in the U.S. collective bargaining system viewed through analysis of historical, legal, institutional perspectives; emphasis on union and management structures.

07B:206 Research Process and Design
Research process, with emphasis on fundamentals of experimental design, internal and external validity, correlational designs, and statistical inference.

07B:209 Survey Research and Design
Survey design and implementation; writing and evaluation of survey questions; error in survey research; techniques to reduce error; sampling; postcollection processing of survey data. Prerequisite: 07B:206 or 07P:143 or consent of instructor. Same as 07P:209.

07B:210 Education and Social Change
Role of educational institutions, in connection with political and economic structures, in the process of social change; illumination of theories of social change through case studies of educational systems in both less-developed and industrialized nations. Same as 034:310.

07B:212 Individualized Instruction, Supervision
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of supervision. Prerequisites: consent of advisor and instructor.

07B:213 Individualized Instruction, Finance
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of finance. Prerequisites: consent of advisor and instructor.

07B:214 Individualized Instruction, Law
Readings, special projects, and/or studies that reflect joint instructor/student interest in area of law. Prerequisites: consent of advisor and instructor.

07B:216 Finance in Higher Education
Theory, research, policy, and practice related to public and private funding of higher and postsecondary education.

07B:217 Theory and Practice of Leadership
Theory-based literature and critiques of leadership as applied to educational institutions.

07B:218 The Law and Higher Education
The role of law as it affects postsecondary institutions; analysis of case law in specific areas of concern to administrators, faculty, staff, students.

07B:220 History and Philosophy of Postsecondary Education
Major themes and developments in American higher education; ideologies, people, movements that have influenced those developments.

07B:221 The College Curriculum

Issues, principles, policies, and practices in college curriculum development; diverse philosophical, historical, cultural, social, psychological, political foundations of contemporary college curricula; perspectives on and models of college curriculum, related processes of teaching and learning; principles and practices that guide design and change of higher education curriculum.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07B:222</td>
<td>Introduction to Policy Analysis and Evaluation</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Theoretical and technical approaches to analysis</td>
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<td></td>
<td>and evaluation of contemporary public policies.</td>
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<tr>
<td>07B:224</td>
<td>Organizational Theory and Administrative Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Theories and concepts of organizational behavior</td>
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<td></td>
<td>applied in structural, organizational,</td>
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<tr>
<td></td>
<td>administrative contexts of American education.</td>
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<tr>
<td>07B:225</td>
<td>Introduction to Public Policymaking</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Overview of public policy making and the tools</td>
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<td>used to create and deliver policy benefits to</td>
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<tr>
<td></td>
<td>constituents.</td>
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<tr>
<td>07B:226</td>
<td>Educational Management</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Literature and research on management; emphasis</td>
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<td>on American education.</td>
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<tr>
<td>07B:228</td>
<td>Policy Design and Implementation</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Review of literature, emphasis on policy drafting</td>
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<td></td>
<td>skills for administration and management in</td>
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<td></td>
<td>education and other settings.</td>
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<tr>
<td>07B:230</td>
<td>Alternative Models of Schooling</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Popular alternatives to K-12 and postsecondary</td>
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<td></td>
<td>education; homeschooling, boarding schools,</td>
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<td></td>
<td>charter schools, magnet schools; construction of</td>
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<td></td>
<td>a conceptual framework for understanding</td>
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<td></td>
<td>alternatives.</td>
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<tr>
<td>07B:232</td>
<td>Advanced Theory Sociology of Education</td>
<td>3 s.h.</td>
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<td></td>
<td>Sociology of education; concepts and nature of</td>
<td></td>
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<td></td>
<td>the field; strengths and weaknesses of theories</td>
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<tr>
<td></td>
<td>and paradigms; research. Prerequisite: 07B:130.</td>
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<td>07B:236</td>
<td>Administration of Students with Special Needs</td>
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<td>Foundation for and skill practice in tasks</td>
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<td>performed by directors of special education and</td>
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<td>others administering to needs of special</td>
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<td>education students, and economically and socially</td>
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<td>deprived students; for prospective school</td>
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<td>administrative personnel. Same as 07U:236.</td>
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<td>07B:237</td>
<td>History of Teaching in the United States</td>
<td>3 s.h.</td>
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<td>History of public school teaching, and teachers'</td>
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<td>problematic professional status; teacher</td>
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<td>education in the 19th and 20th centuries;</td>
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<td>formation and activities of teacher unions in</td>
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<td>the 20th century.</td>
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<td>07B:238</td>
<td>History of Women's Education in the United States</td>
<td>3 s.h.</td>
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<td>Female students K-12 and in higher education;</td>
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<td>women teachers, professors, administrators;</td>
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<td>reading-intensive seminar.</td>
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<td>07B:240</td>
<td>Topics in Education</td>
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<td>Seminar for intensive study of one problem,</td>
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<td>issue, or work field. Repeatable.</td>
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<td>07B:242</td>
<td>Research for Effective School Leaders</td>
<td>3 s.h.</td>
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<td>Fundamental language of contemporary research;</td>
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<td>identification and application of basic research</td>
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<td>components to contemporary educational leadership</td>
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<td>problems; applicability of research toward</td>
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<td>effective decision making.</td>
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<td>07B:245</td>
<td>The American Professoriate</td>
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<td>Research on college and university faculty</td>
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<td>members; perspectives on faculty careers, values</td>
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<td>beliefs, role in shared governance; tenure</td>
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<td>process and policies; issues unique to faculty</td>
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<td>members of color and women faculty members.</td>
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<td>07B:260</td>
<td>Contemporary Management Strategies for the K-12</td>
<td>3 s.h.</td>
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<td>Leadership skills and management techniques for</td>
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<td>daily organization and operation of schools;</td>
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<td>emphasis on climate, communication, group</td>
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<td>processes, conflict resolution, curriculum</td>
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<td>07B:265</td>
<td>Standards-Based Education and Accountability</td>
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<td>Standards-based education; academic content</td>
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<td>standards, K-12 articulation, alignment studies,</td>
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<td>use of standardized test results to evaluate</td>
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<td>academic programs.</td>
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07B:270 Current Research on Policy and Assessment  
Current issues from academic journals, states, think tanks, consortia.

07B:285 School and Community Relationships  
Community analysis, politics and education, power groups and influences, school issues and public responses, public relations strategies.

07B:290 Master’s Project  
Research for the nonthesis program; topic approved by advisor.

07B:291 Administration of Educational Programs and Personnel  
Personnel and program planning examined against statements of educational purpose; interrelationships and internal consistencies of program and staff administration from perspectives of philosophy, psychology, learning theory, sociology, curriculum theory.

07B:293 Individualized Instruction  
Readings, special projects, and/or studies that reflect joint instructor/student interest. Prerequisite: consent of instructor.

07B:294 Politics and Economics of Financing Public Education  
Theories, models, research relating to educational governance and finance considered with issues in policy development, analysis, appraisal, planning; their interrelation in American public education.

07B:295 Financial Management of Local School Systems  
School business administration; emphasis on fiscal management, including budgetary procedures, short- and long-range fiscal and facilities planning, management techniques.

07B:297 Administrative Leadership Theory  
Administrative leadership theory drawn from social psychology, sociology, political science, communications, business, and their applications; analysis and formulation of strategies for performing leadership functions in educational administration.

07B:298 Legal Aspects of School Personnel  
Teacher and student: liability, negotiations, rights, privileges, responsibilities of school personnel; principles of law derived from court decisions; constitutional and statutory provisions; for teachers and administrators.

07B:299 Legal Aspects of School Administration  
Nonpersonnel concepts in education: organization, property, finance, religion, discrimination, intergovernmental relations; use of constitutional and statutory provisions plus court decisions; primarily for administrators but applicable to teachers.

07B:311 Seminar: Research Topic in Education  
Topic submitted by students, faculty. Repeatable.

07B:333 Practicum  
Small-scale research projects; supervised experience in planning, design, management, analysis, reporting of research activities; assignments to current and personal faculty research projects; student assumes major responsibility. Prerequisite: consent of instructor.

07B:358 Seminar in the Philosophy of John Dewey  
John Dewey and education; extensive reading of the works of Dewey and of contemporary authors who comment on, interpret, or employ Deweyan philosophy. Prerequisite: 07B:158.

07B:367 Seminar: Current Issues in Special Education Administration  
New developments in administration; new content each year. Repeatable. Prerequisites: 07B:236 and consent of instructor.

07B:370 Quantitative Methods for Policy Analysis  

Methodological strategies of quantitative researchers; secondary data analysis for investigation of educational problems and policies; interpretation of results, communication of policy considerations. Prerequisites: 07P:143 and 07P:243, or equivalents; or consent of instructor.

07B:373 Qualitative Research Design and Methods 3 s.h.
Theory and practice of qualitative research design and methodology; exploratory field experience in collection and analysis of data; individual and focus group interviews, participant observation. Prerequisite: Ph.D. standing.

07B:381 Analysis and Appraisal of Curriculum 3 s.h.
Comprehensive investigation of systematic procedures and resources for identifying and evaluating essential features and constituent elements of a given school district's curricular offering; state and federal requirements of the curricular program; for persons in administration, curriculum, and supervision programs or positions.

07B:383 Supervision and Evaluation 3 s.h.
Data collection and management skills; data-driven leadership; coaching and feedback techniques; teacher quality legislation; research and best practice regarding teacher evaluation, supervision; teaching standards.

07B:385 Teaching and Learning in Higher Education 3 s.h.
Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07C:385, 07P:385, 07S:384, 650:385.

07B:395 Educational Specialist Research arr.
Individual instruction in the design, research, and writing of a research project of significant quality for upper-level graduate work. Prerequisite: consent of advisor.

07B:400 Early Childhood Leadership Clinical 2-3 s.h.
Classroom instruction and supervised experience with problems in early childhood educational administration; organization, planning, evaluation, decision making. Prerequisite: consent of instructor.

07B:401 Elementary Leadership Clinical 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

07B:402 Secondary Leadership Clinical 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

07B:403 Special Education Leadership Clinical 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

07B:404 Central Administration Clinical 1-3 s.h.
Supervised experience working with problems in educational administration, including organization, planning, evaluation, decision making; individual project in a school setting. Prerequisite: consent of instructor.

Supervision of research, design, and writing of Ph.D. thesis; individual instruction. Prerequisite: consent of advisor.
Psychological and Quantitative Foundations

The Department of Psychological and Quantitative Foundations offers programs in four areas: educational measurement and statistics, counseling psychology, educational psychology, and school psychology. These programs have two general goals: to help students acquire the knowledge and skills necessary to function effectively in settings that require the application of psychological and quantitative principles, and to extend knowledge and understanding of the teaching/learning process as it occurs in a variety of settings. The major emphasis in the M.A. and Ed.S. programs is on the first of these goals; that in the Ph.D. programs is on the second. However, there is some emphasis on both goals in all programs.

Undergraduate Program

The department offers a minor in educational psychology. It also offers a course approved for the quantitative or formal reasoning area of the College of Liberal Arts and Sciences General Education Program.

Minor

The minor in educational psychology provides an enriched background in educational psychology, education testing, and research methods in education. It does not lead to certification for public school teaching.

The minor requires 15 s.h., including 12 s.h. earned in 100-level courses. Students select a department advisor, who helps them choose appropriate course work.

Contact the Office of Teacher Education and Student Services for more information about the minor.

General Education Program

One of the General Education Program requirements for graduation from the College of Liberal Arts and Sciences is successful completion of a course designed to develop skills in quantitative or formal reasoning; 07P:025 Elementary Statistics and Inference may be used to satisfy this requirement.

Graduate Programs

The Department of Psychological and Quantitative Foundations offers an M.A. and Ph.D. in educational measurement and statistics; a Ph.D. in counseling psychology; an M.A. and Ph.D. in educational psychology; and an Ed.S. and Ph.D. in school psychology. Each program is described below, with information about degree requirements and application for admission.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college’s web site).

Educational Measurement and Statistics

M.A. in Educational Measurement and Statistics
The Master of Arts in educational measurement and statistics provides students with basic knowledge of educational measurement and research methodology. Graduates find employment in large school systems, state departments of education, test publishing organizations, and research centers. The program also is appropriate for students who wish to broaden their knowledge of measurement and research methodology for personal development or professional improvement.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test. Completion of at least one college mathematics course and experience as a teacher or researcher are desirable. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.

Applicants must submit a statement of purpose that explains how the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

REQUIREMENTS

The M.A. in educational measurement and statistics with thesis requires a minimum of 30 s.h. of graduate credit (at least 28 s.h. of course work plus 2-4 s.h. of thesis credit); the nonthesis option requires a minimum of 32 s.h. All students must complete a core of courses (approximately 26 s.h.) that includes a graduate-level survey course in educational psychology, elementary and intermediate courses in statistical methods, a course in educational research methodology, and courses in the development and use of evaluation instruments. Students who already have completed equivalent courses at another institution may add more advanced courses to the core.

The six-hour comprehensive examination typically includes three-hour examinations in educational measurement and in applied statistics. With the approval of the M.A. committee, a student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations assume a minimum of three courses in the area; two-hour examinations assume a minimum of two courses in the area.

Ph.D. in Educational Measurement and Statistics

The Doctor of Philosophy in educational measurement and statistics prepares students for senior professional positions in educational measurement, evaluation, and statistical methods. Graduates find employment in colleges and universities, state and federal agencies, large public and private school systems, test publishing firms, and research centers.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test. They also must hold an M.A. from an accredited institution. At least one year of professional experience in teaching, research, or a related field is desirable. Applicants who expect to concentrate in statistics should have training in college mathematics through differential and integral calculus. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.

Applicants must submit a statement of purpose that explains how the educational measurement and statistics program will help them accomplish their educational and vocational goals.

For information about admission dates, contact the educational measurement and statistics program coordinator.

REQUIREMENTS

The Ph.D. in educational measurement and statistics requires a minimum of 90 s.h. of graduate credit, including at least 12 s.h. of thesis credit.

During the first year of graduate study, the student and his or her advisor plan a program of study appropriate for the student’s interests and vocational objectives. The typical program involves advanced work in educational measurement, data analysis methods, research methodology, and educational psychology. Work in other departments of the University is encouraged.

Students who concentrate in statistics and intend to teach at the college level take courses in the mathematical theory of statistics. Those who concentrate in educational measurement and evaluation take appropriate courses in curriculum, counseling, or higher education.

All students are required to develop familiarity with computer programming techniques and equipment.
All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

Students who enter the program without completing an M.A. thesis must complete a substitute project before taking the Ph.D. comprehensive examinations.

After completing most of their course work, students take the comprehensive examination, which typically consists of three 3-hour written examinations on educational measurement, applied statistics, and program evaluation, or approved substitute areas, such as educational psychology or mathematical statistics, in which the student has completed at least 9 s.h. of course work. In place of one written examination, the student's committee may assign a project involving analytical and evaluative skills, or research creativity. The written examinations are followed by an oral examination in which the committee seeks further evidence of the student's command of the three fields. A single decision is made on all aspects of the comprehensive examination.

Counseling Psychology

Ph.D. in Counseling Psychology

The Doctor of Philosophy in counseling psychology was granted full accreditation by the American Psychological Association in 1983. Full accreditation was renewed in 2005.

The program's goal is to prepare counseling psychologists who will promote psychology as a science and contribute to the advancement of the profession. No master's degree is offered in counseling psychology. The faculty endorses a scientist/practitioner model of training and expects students to become competent researchers and proficient practitioners. Graduates find positions in a variety of settings, including higher education, counseling centers, clinics, private practice settings, and hospitals.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. Preference is given to applicants who have an undergraduate g.p.a. above 3.00 and a graduate g.p.a. above 3.50; an undergraduate major, minor, or substantial course work in psychology; a combined verbal and quantitative score above 1200 on the Graduate Record Examination (GRE) General Test; and previous research and counseling experience.

Application materials must include a Graduate College application form; official transcripts of all previous college work; an official report of GRE General Test scores (the GRE advanced test in psychology is recommended but not required); a personal statement outlining career goals and reasons for seeking advanced training in counseling psychology; and three letters of recommendation from individuals qualified to assess the applicant's potential for completing the doctoral program. The faculty encourages applications from minorities, women, and persons from a wide range of backgrounds and academic preparation. The program typically accepts between five and eight students each year.

Admission is for fall entry. Application deadline is December 1. Admissions decisions usually are made by March 1. Applicants are invited to campus for interviews before final selection. All students must study full-time.

REQUIREMENTS

The Ph.D. in counseling psychology requires a minimum of 96 s.h. of graduate credit.

Basic Psychology

All students are required to have a thorough grounding in the basic discipline of psychology. This may be achieved through a minimum of 3 s.h. of credit in each of the following four areas: biological bases of behavior, cognitive-affective bases of behavior, social bases of behavior, and history and systems. Students complete an additional 6 s.h. in the area of individual differences.

Required Research Courses

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with the requirements listed under "Statistics and Research Design" below.
Statistics and Research Design

Two courses are required.

07P:243 Intermediate Statistical Methods 4 s.h.

One of these:

07P:244 Correlation and Regression 4 s.h.
07P:246 Design of Experiments 4 s.h.

Counseling Psychology Core

07P:223-07P:225 Introduction to Counseling Psychology Practice/Research I-II 6 s.h.
07P:235 Multicultural Counseling 3 s.h.
07P:305 Psychotherapy I: Dynamic and Phenomenological Approaches 3 s.h.
07P:306 Psychotherapy III: Career Interventions 3 s.h.
07P:309 Personality Assessment 3 s.h.
07P:310 Intelligence Assessment 3 s.h.
07P:356 Process and Outcomes in Counseling Psychotherapy 3 s.h.
07P:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.
07P:434 Practicum in Counseling Psychology 3 s.h.
07P:453 Advanced Practicum in Counseling Psychology (repeatable) 1-3 s.h.
07P:465 Issues and Ethics in Professional Psychology 3 s.h.

Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. The first practicum's site typically is University Counseling Service. Subsequent placements at other sites must have prior approval of the counseling psychology faculty. Students must successfully complete one semester of 07P:299 M.A. Project: The Portfolio before enrolling in 07P:453 Advanced Practicum in Counseling Psychology.

Other Requirements

Elective courses are determined in collaboration with the major advisor.

The dissertation research study is planned in collaboration with the doctoral student's major advisor. Dissertation credit can range from 12 to 15 s.h.

Students spend a calendar year in an internship setting approved by the counseling psychology faculty. The faculty determines student readiness to apply for the internship based on completion of all or almost all required course work, satisfactory progress toward completion of the portfolio requirement, and successful completion of practicum requirements. Internships usually require geographic relocation.

Comprehensive examinations are written in counseling psychology ethics and issues. The comprehensive examination is structured as a component of the portfolio review. For more information, contact the program coordinator.

Students must show appropriate levels of emotional balance and interpersonal skills and act within the American Psychological Association Ethical Principles of Psychologists. For more information, contact the program director.

Educational Psychology

M.A. in Educational Psychology

The Master of Arts in educational psychology is designed to help students become more effective practitioners by enhancing their ability to make responsible and creative decisions about how to help all of their students learn. By providing an evidence-based perspective on instructional approaches that work, it also addresses the emphasis on teachers' accountability for choosing empirically supported approaches.

The M.A. in educational psychology is designed for working educators. Many of the program's courses are offered in late afternoons, evenings, and summers.

Full-time M.A. students are expected to complete the degree in two years. Each student's progress is evaluated by the faculty after one academic year (two semesters) of study and during subsequent years.
ADMISSION

Applicants must meet the admission requirements of the Graduate College, including minimum grade-point average. They must have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test; successful applicants usually score higher. International applicants whose first language is not English must submit acceptable scores on the Test of English as a Foreign Language (TOEFL). Teaching experience is desirable but not required.

Application deadline for fall semester entry is February 1. Review of applications for fall semester begins January 1, when applicants who wish to be considered for fellowships and other awards are screened. Application deadline for spring semester entry is October 1. Admission decisions are announced approximately one month after the application deadlines.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 are committed not to solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is consistent with standards set by the association’s Board of Educational Affairs.

REQUIREMENTS

The M.A. in educational psychology requires a minimum of 30 s.h. of graduate credit. A thesis is not required. Students develop a program of study in consultation with their advisors.

Students complete a required common core of courses, select additional educational psychology courses and electives appropriate to their professional goals, and complete a portfolio project. The two core courses, which are taken during the first year, prepare students for the M.A. program. *Educational Psychology for Effective Teaching* (07P:221) introduces them to a broad sampling of topics in educational psychology (e.g., development, cognition, motivation). Also during the first year, students begin their portfolios, which they continue to build throughout the program and complete during their final M.A. semester.

Full-time M.A. students typically take at least 9 s.h. each semester, with the option of additional summer session work; they usually complete the program in four semesters. Part-time M.A. students take 3-6 s.h. each semester; they usually complete the degree in two or three years.

Students may apply to substitute equivalent course work from another institution or department for required or recommended courses.

**Required Core**

- 07P:202 Understanding Educational Research 3 s.h.
- 07P:221 Educational Psychology for Effective Teaching 3 s.h.

**Educational Psychology Courses**

Five of these:

- 07P:106 Child Development 3 s.h.
- 07P:111 Motivation 3 s.h.
- 07P:203 Learning, Technology, and Effective Teaching 3 s.h.
- 07P:205 Design of Instruction 3 s.h.
- 07P:208 Designing Educational Multimedia 3 s.h.
- 07P:281 Cognitive Theories of Learning 3 s.h.
- 07P:301 Human Abilities 3 s.h.

**Electives**

Students select two electives (6 s.h.) based on their interests and in consultation with their advisors. Electives typically are chosen from areas outside educational psychology.

**Portfolio Project**

The program’s capstone project is a portfolio. Students enroll in 07P:299 M.A. Project: The Portfolio (3 s.h.) during their final M.A. semester. The goal of the portfolio is to show how understanding and practical application of educational psychology can help the student become a more effective educator.
The portfolio is a creative and highly individual project. Each student's portfolio reflects his or her own unique learning and synthesis of knowledge. Students begin building the portfolio during their first year, making an entry as they complete each course throughout the M.A. program. Portfolio entries vary widely. For example, the entry for a technology course might include a web site the student developed for the course, while the entry for a development course might detail an intervention program the student constructed to address problems of student aggression. During enrollment in 07P:299 M.A. Project: The Portfolio, the student revises and adds to his or her portfolio, then presents the portfolio to a group of faculty and students.

**Ph.D. in Educational Psychology**

The Doctor of Philosophy in educational psychology is designed to help students master the core content and methods of educational psychology and acquire the depth of knowledge and methodological sophistication necessary for original research that contributes to the discipline.

Ph.D. students are reviewed annually by the faculty. Students must complete a second-year project by the end of their second academic year in the program. Those who do not fulfill this requirement or who otherwise fail to make satisfactory progress may be required to withdraw.

Students who enter the Ph.D. program without having completed an M.A. thesis are required to complete an independent research course sequence and its assigned research project in either their first or second year. Students who have completed an empirical M.A. thesis that is acceptable to the faculty may omit the independent research sequence and second-year project.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College, including minimum grade-point average. They must have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test; successful applicants usually score higher. International applicants whose first language is not English must submit acceptable scores on the Test of English as a Foreign Language (TOEFL). Applicants who do not meet all admission requirements may be granted conditional admission on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations. Conditional admission is rare.

Admission is for fall entry. Application deadline is January 1; late applications might not be considered. Review of applications begins January 1, when applicants who wish to be considered for fellowships and other awards are screened. Admission decisions are announced approximately six weeks after the application deadline.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is consistent with standards set by the association's Board of Educational Affairs.

**REQUIREMENTS**

The Ph.D. in educational psychology requires a minimum of 72 s.h. of graduate credit. Students develop a plan of study in consultation with their advisors. Some of the required courses listed below encompass substantive areas within educational psychology. Other required courses include a research practicum, in which students assist with and eventually design and carry out original research, and several courses in measurement and statistics.

Some requirements may be waived for students who begin the Ph.D. program with a master's degree or with course work from another program.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with the following course requirements for the Ph.D.

**Required Courses**

All of these (or equivalents):

- 07P:200 Educational Psychology 3 s.h.
- 07P:205 Design of Instruction 3 s.h.
- 07P:220 Quantitative Educational Research Methodologies 3 s.h.
07P:230 Research in Educational Psychology (taken second year of program) 1-3 s.h.
07P:257 Educational Measurement and Evaluation 3 s.h.
07P:281 Cognitive Theories of Learning 3 s.h.
07P:283 Cognitive Development 3 s.h.
07P:301 Human Abilities 3 s.h.
07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations (minimum requirement) 10 s.h.
07X:150 Introduction to Educational Research (taken during first year in program) 3 s.h.

Recommended Courses

At least four of these:

- 07P:208 Designing Educational Multimedia 3 s.h.
- 07P:212 Advanced Life-Span Development 3 s.h.
- 07P:215 Web-Based Learning 3 s.h.
- 07P:265 Program Evaluation 3 s.h.
- 07P:269 Advanced Personality 3 s.h.
- 07P:275 Constructivism and Design of Instruction 3 s.h.
- 07P:335 Advanced Motivation: Laboratory and Classroom Investigation 3 s.h.

Electives

At least two of these (or equivalents):

- 07P:243 Intermediate Statistical Methods 4 s.h.
- 07P:244 Correlation and Regression 4 s.h.
- 07P:245 Applied Multivariate Analysis 3 s.h.
- 07P:246 Design of Experiments 4 s.h.
- 07P:247 Nonparametric Statistical Methods 3 s.h.
- 07P:252 Introduction to Multivariate Statistical Methods 3 s.h.

Minor Area

Students must complete a minimum of 12 s.h. that constitute a coherent program of course work outside educational psychology and beyond the courses listed above. The minor area may be from a foundation discipline, such as psychology, or in another area of education, such as mathematics education, educational philosophy, or program evaluation. Course work must be at or above the 200-level, may span departments and colleges, and must reflect a plan approved by the student's advisor.

Second-Year Research Project

As part of their participation in 07P:230 Research in Educational Psychology, Ph.D. students are required to complete a research project of modest scope under the direction of a faculty member. They must present the work in both oral and written form to the program's faculty and students. The written report must be completed by the end of the student's second academic year in the program.

Students who enter the Ph.D. program holding an M.A. or M.S. with an acceptable empirical thesis are exempt from 07P:299 M.A. Project: The Portfolio and the project.

COMPREHENSIVE EXAMINATION

The Ph.D. comprehensive examination emphasizes competence and depth in one or more narrowly defined areas of research and theory. Students choose from three options in consultation with their advisor and with the approval of the examining committee, which is made up of five faculty members. The options are a review article, an extended research activity, or a traditional comprehensive examination. For details of each option's requirements, see http://www.education.uiowa.edu/edpsych/doctoral.htm or contact the Department of Psychological and Quantitative Foundations.

School Psychology

The graduate program in school psychology is designed for students seeking a Doctor of Philosophy. All prospective
students must apply to the Ph.D. program. Doctoral students may receive an Education Specialist degree when they complete the Ed.S. requirements.

**Ed.S. in School Psychology**

The Educational Specialist in school psychology provides course work and supervised field experience in education and psychology, enabling graduates to qualify for Iowa licensure as school psychologists (State of Iowa Endorsement 40). The Ed.S. is granted only to students working toward a Ph.D. in school psychology.

**REQUIREMENTS**

The Ed.S. in school psychology requires a minimum of 60 s.h. of graduate credit (the total depends on students' previous course work). It includes courses in psychological foundations, psychoeducational foundations, school psychology, and research methods. Other requirements include a written comprehensive examination and a research paper prepared in conjunction with 07P:342 Research Project in School Psychology (1-6 s.h.).

**Ph.D. in School Psychology**

The Doctor of Philosophy in school psychology was granted full accreditation by the American Psychological Association in 1992; full accreditation was renewed in 2005. The program's goal is to prepare doctoral-level school psychologists who will promote psychology as a science and contribute to the advancement of the profession. The faculty members endorse a scientist/practitioner model of training and expect students to become competent researchers and proficient practitioners.

Specializations are available in gifted and talented and in pediatric psychology.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College. Preference is given to applicants with an undergraduate major in psychology or education, a g.p.a. above 3.00, and combined verbal and quantitative scores above 1000 on the Graduate Record Examination (GRE) General Test. The faculty also encourages applications from individuals with an M.A. or Ed.S. and experience as psychologists or other human service providers.

Applications must include three letters of recommendation, a personal statement of interest and goals, and a writing sample. Complete application materials, including transcripts and test scores, must be received by January 1 to be considered for fall semester admission. Admission decisions usually are made by March 15. The program admits from six to eight students each year.

**REQUIREMENTS**

The Ph.D. in school psychology requires a minimum of 108 s.h. of graduate credit. All students are required to have a thorough grounding in the basic discipline of psychology, which may be achieved through earning a minimum of 3 s.h. of credit in each of the following areas: biological bases of behavior, cognitive/affective bases of behavior, social bases of behavior, individual differences, and history and systems.

The plan of study is developed by students and their academic advisors. Students are required to complete yearly portfolio reviews, which include oral examinations; carry out a preliminary dissertation research project equivalent in scope to an M.A. thesis; participate in an internship; and complete a doctoral dissertation, earning a minimum of 10 s.h. in 07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with other course requirements for the Ph.D.

The following courses constitute the school psychology core.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>07P:224</td>
<td>Prepracticum in School Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:237</td>
<td>Practicum in School Psychological Service</td>
<td>3 s.h.</td>
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<tr>
<td>07P:238</td>
<td>Assessment of Learning Differences</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>07P:251</td>
<td>Individual Intelligence Testing</td>
<td>3 s.h.</td>
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<tr>
<td>07P:263</td>
<td>Consultation Theory and Practice</td>
<td>3 s.h.</td>
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<tr>
<td>07P:313</td>
<td>Psychopathology in Childhood</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:315</td>
<td>Psychodiagnosics: Children and Adolescents</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:337</td>
<td>Advanced Practicum in School Psychology</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>07P:340</td>
<td>School Psychology Professional Seminar</td>
<td>1-6 s.h.</td>
</tr>
</tbody>
</table>
07P:352 Seminar: Behavioral Assessment and Evaluation 3 s.h.
07P:367 Social Psychology and Social Systems 3 s.h.
07P:380 Practicum in College Teaching (optional) 1-3 s.h.
07P:390 Supervision of School Psychology Practicum/Internship 1 s.h.
07P:437 Internship in School Psychology (one year full-time or two years half-time, total of 1800 hours) 3 s.h.
07X:150 Introduction to Educational Research (taken during first year in program) 3 s.h.

Program course work in evaluation is required.

Students must enroll in practicums to reach a specified level of client contact, supervision, and additional experience hours. Placements must have prior approval of the school psychology faculty. Students must successfully complete one semester of 07P:237 Practicum in School Psychological Service before enrolling in 07P:337 Advanced Practicum in School Psychology. Students must adhere to the most recent ethical principles and standards of the American Psychological Association.

Psychological and Quantitative Foundations Courses

Students may receive credit for only two of these three courses: 22S:002 Statistics and Society, 22S:008 Statistics for Business, and 22S:025 Elementary Statistics and Inference (same as 07P:025). Credit for 22S:002 Statistics and Society is given only if the course is taken before 22S:008 Statistics for Business or 22S:025 Elementary Statistics and Inference (same as 07P:025 Elementary Statistics and Inference).

07P:025 Elementary Statistics and Inference 3 s.h.
Graphing techniques for presenting data, descriptive statistics, correlation, regression, prediction; logic of statistical inference, elementary probability models, estimation and tests of significance. Prerequisite: 22M:001 or equivalent. GE: Quantitative or Formal Reasoning. Same as 22S:025.

07P:029 First-Year Seminar 1 s.h.
Investigate factors keeping students from being successful, such as lack of study skills and academic preparation, alcohol and drug abuse, gambling, credit card debt; other issues leading to dropping out of school include depression, dating violence, not fitting in; course is driven by student interest; participants pick topics, find readings, research topics, and lead a class discussion on their topic.

07P:075 Educational Psychology and Measurement 3 s.h.
Principles and classroom applications of cognitive and social development, learning and cognition, motivation, and assessment.

07P:106 Child Development 3 s.h.
Theories and research findings about typical course of child development, differences in development. Prerequisite: junior standing or consent of instructor.

07P:111 Motivation 3 s.h.
Principles of motivation and their application to applied settings, especially to the classroom as teachers try to motivate students. Prerequisite: junior standing or consent of instructor.

07P:115 Introduction to Counseling Psychology 3 s.h.
Historical and philosophical foundations of counseling psychology; theories, application, and work of counseling psychologists.

07P:120 Psychology of Giftedness 3 s.h.
Theories of learning, child development, motivation; issues unique to gifted education. Same as 07C:120.

07P:121 Identification of Students for Gifted Programs 3 s.h.
Interpretation of standardized tests and other measurement instruments used to identify academic talent and program effectively for grades K-12; ability, aptitude, achievement tests; current issues in the uses of various instruments. Same as 07C:121.

07P:122 Math Programming for High Ability Students 1 s.h.
Unique challenges and opportunities confronted by teachers of high-ability students; theory and practice, development of program outlines for implementation. Same as 07S:122.
07P:125 Counseling and Psychological Needs of the Gifted 1 s.h.
Psychological aspects of giftedness, counseling techniques appropriate for gifted children, adolescents; socio-emotional concerns, career development, underachievement. Same as 07C:125.

07P:126 Cognitive and Affective Needs of Underachieving Gifted 1 s.h.
Diagnostic strategy for identifying types of underachievement, teaching and counseling interventions appropriate for each. Same as 07C:126.

07P:127 Research and Theory in Talent/Giftedness 1 s.h.
Biennial research symposium. Same as 07C:127.

07P:128 Neuroscientific Implications for Gifted 1 s.h.
Neurology of behavior and neurodegenerative disease; the psychology of learning and memory, its application to gifted education.

07P:129 Creativity: Issues and Applications in Gifted Education 1 s.h.
Theories that underpin contemporary definitions of creativity; instruments developed to measure creativity; activities in the school environment that enhance or inhibit student creativity. Same as 07C:129.

07P:130 Early Adolescent Development 3 s.h.
Psychological growth and development of the early adolescent (ages 10-14), including the physical, cognitive, social, emotional, and sexual development of the middle-school aged child.

07P:133 The Adolescent and Young Adult 3 s.h.
Psychological and social aspects of adolescence and young adulthood; emphasis on theory, research, and practical applications.

07P:134 Parent-Teacher Communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 07E:134, 07U:134.

07P:136 Home/School/Community Partnerships 3 s.h.

07P:143 Introduction to Statistical Methods 3 s.h.
Analysis, interpretation of research data; descriptive statistics; introduction to probability, sampling theory, statistical inference (binomial, normal distribution, t-distribution models); linear correlation, regression. Same as 22S:102.

07P:148 Bayesian Statistics 3 s.h.
Bayesian statistical analysis, with focus on applications; Bayesian and frequentist methods compared; Bayesian model specification, choice of priors, computational methods; hands-on Bayesian data analysis using appropriate software; interpretation and presentation of analysis results. Prerequisites: 22S:120 and 22S:152, or equivalent. Same as 22S:138.

07P:150 Introduction to Educational Measurement 3-4 s.h.
Test development procedures, reliability, validity, item writing, evaluation of item and test characteristics; classroom assessment methods; interpretation of scores from standardized achievement and aptitude tests; no background in statistics assumed.

07P:165 Introduction to Program and Project Evaluation 3 s.h.
Skills and knowledge required for conducting evaluations of products, projects, and programs; recent scholarship on evaluation and project management. Same as 07B:165.

07P:181 ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Prerequisites: able to perform basic computer functions and use a World Wide Web browser. Same as 07C:181, 07E:181, 07S:181, 07U:181, 07X:181.
07P:193 Special Readings and Projects
Supervised individual study. Prerequisites: senior standing and consent of instructor.

07P:199 Topical Workshop in Psychological and Quantitative Foundations
School, educational, and counseling psychology and allied disciplines; for professionals and graduate students in education, mental health, social services, related fields. Repeatable.

07P:200 Educational Psychology
3 s.h.
Psychology of the learning/instruction process: theoretical perspectives on learning, instruction, motivation, and assessment; developmental concepts, social processes, individual variation, learning and technology, biological basis of learning.

07P:202 Understanding Educational Research
3 s.h.
Quantitative and qualitative research methods; emphasis on critical analysis of educational research rather than performance of research.

07P:203 Learning, Technology, and Effective Teaching
3 s.h.
Theories and issues in the use of technology in learning and teaching; project to design a technology-supported learning solution for an educational problem.

07P:205 Design of Instruction
3 s.h.
Introduction to processes used to design, develop, implement, and evaluate effective instruction; projects.

07P:206 Advanced Child Development
3 s.h.
Theories of social and cognitive development; in-depth study of several current controversies in the field. Prerequisite: 07P:106 or equivalent or consent of instructor.

07P:207 Evaluation of Children with ADHD and LD
arr.
Clinical experience in conducting pediatric neuropsychology examinations in the Pediatric Attention/Learning Disorders Clinic. Prerequisites: course on psychological testing (including IQ), graduate psychology standing (school, counseling, rehabilitation, clinical), and consent of instructor. Same as 070:245.

07P:208 Designing Educational Multimedia
3 s.h.
Theory, design, and evaluation of instructional software.

07P:209 Survey Research and Design
3 s.h.
Survey design and implementation; writing and evaluation of survey questions; error in survey research; techniques to reduce error; sampling; postcollection processing of survey data. Prerequisite: 07B:206 or 07P:143 or consent of instructor. Same as 07B:209.

07P:212 Advanced Life-Span Development
3 s.h.
Selected theories and research in development across the life span, especially from adolescence through late adulthood; focus on relevance for instruction and counseling.

07P:215 Web-Based Learning
3 s.h.
Theory and practice of designing web sites to support or deliver instruction; student team project to create an instructional web site that integrates the theory and principles from class readings. Prerequisites: 07P:208 and consent of instructor.

07P:217 Seminar in College Teaching
1-3 s.h.
Preparation for college teaching; for graduate students planning to teach.

07P:220 Quantitative Educational Research Methodologies
3 s.h.
Procedures for planning, conducting, and reporting research; evaluation of current methods in educational research; quantitative designs and methods. Prerequisite: 07P:143 or 22S:102 or consent of instructor.

07P:221 Educational Psychology for Effective Teaching
3 s.h.
How educators use educational psychology theories and research to develop expertise in teaching and learning; cognition, motivation, technology, individual differences.
07P:223 Introduction to Counseling Psychology Practice/Research I
Historical, theoretical, professional, scientific traditions associated with counseling psychology; professional ethical principles. Prerequisite: consent of instructor.

07P:224 Prepracticum in School Psychology
Introduction to the practice of school psychology; framework for understanding role and function, legal and ethical boundaries, professional requirements; preparation for practicum. Prerequisite: consent of instructor.

07P:225 Introduction to Counseling Psychology Practice/Research II
Learning and performance of basic helping skills; integration of these skills with counseling theories, broader counseling strategies; laboratory-based. Prerequisite: consent of instructor.

07P:226 Assessment of Giftedness
Training and practice in assessment of gifted children. Same as 07C:226.

07P:230 Research in Educational Psychology
Design, implementation, and presentation of an educational psychology empirical research project. Prerequisite: graduate standing in educational psychology or consent of instructor.

07P:234 Advanced Multimedia Design
Theory and development of multimedia programs that use video, CD-ROM, computer animation, digital audio; emphasis on team-development of software. Prerequisite: consent of instructor.

07P:235 Multicultural Counseling
Theoretical and practical aspects of the cultural adaptation process; implications for interventions in diverse populations; issues. Prerequisite: counseling skills introductory course.

07P:237 Practicum in School Psychological Service
Supervised practicum in psychological and educational evaluation in school settings. Repeatable. Prerequisites: 07P:238, 07P:251, and consent of instructor.

07P:238 Assessment of Learning Differences
Same as 07U:238.

07P:242 Selected Applications of Statistics
Application and interpretation of correlation techniques, chi-square, t- and f-tests, interval estimation, simple cases of analysis of variance. Prerequisite: 07P:143.

07P:243 Intermediate Statistical Methods
Foundation for more advanced applied courses; logic of statistical inference, chi-square, and other tests of statistical hypotheses; small sample error theory, interval estimates, introduction to analysis of variance, selected nonparametric methods. Prerequisite: 07P:143 or equivalent. Prerequisite: (for 22S:148) 22S:102 or equivalent. Same as 22S:148.

07P:244 Correlation and Regression
Correlation techniques; selected bivariate procedures, multiple, partial, curvilinear correlation; multiple linear regression; sampling theory applied to regression analysis and correlation coefficients; simple causal models. Prerequisite: 07P:243 or equivalent. Prerequisite: (for 22S:157) 22S:148 or equivalent. Same as 22S:157.

07P:245 Applied Multivariate Analysis
MANOVA, discriminant analysis, factor analysis, principal components, canonical analysis, nonmetric scaling, cluster analysis, categorical data analysis, use of multivariate statistical computer packages. Offered fall semesters. Prerequisites: 22S:152 and 22S:158, or equivalents; and facility with matrix algebra. Same as 22S:161.

07P:246 Design of Experiments
Theory and methods in the planning and statistical analysis of experimental studies; testing of hypotheses about linear contrasts among means in single-factor and multifactor, completely randomized, and repeated measurement designs. Prerequisite: 07P:243 or equivalent. Prerequisite: (for 22S:157) 22S:148. Same as 22S:157.

07P:247 Nonparametric Statistical Methods

Selected nonparametric methods; one- and two-sample location tests and estimation methods, measures of
association, analyses of variance; emphasis on relationships to classical parametric procedures. Prerequisite: 07P:243
or 22S:120 or consent of instructor. Same as 22S:163.

07P:249 Factor Analysis and Structural Equation Models
Foundations of exploratory and confirmatory factor analysis methods; least squares and maximum likelihood
approaches; problems in factor extraction, rotation, interpretation; structural equation models via LISREL; assumptions
and limitations of alternative approaches. Prerequisite: 07P:252 or equivalent or consent of instructor.

07P:250 Computer Packages for Statistical Analysis
Computer programs and systems designed to execute statistical analysis (SAS, SPSS, BMDP, and others); lectures on
regression techniques, analysis of variance, multivariate techniques; practice in entering data, calling up desired
programs, interpreting computer output. Prerequisites: 07P:243 or equivalent, and elementary knowledge of computer
programming.

07P:251 Individual Intelligence Testing
Administration of individual intelligence tests; interpretation of test results; issues in psychological testing; factors that
influence performance. Prerequisites: 07P:143 or 07P:150, and consent of instructor.

07P:252 Introduction to Multivariate Statistical Methods
Selected topics in multivariate analysis, including multivariate significance tests, principal components and factor
analysis, discriminant analysis, canonical correlation, multivariate analysis of variance (MANOVA). Prerequisite:
07P:244 or consent of instructor.

07P:255 Construction and Use of Evaluation Instruments
Design and construction of measures used in educational evaluation: achievement tests, attitude scales, performance
measures, questionnaires; emphasis on methods of instrument development and evaluation of instrument
characteristics. Prerequisites: 07P:143 and 07P:257, or equivalents.

07P:257 Educational Measurement and Evaluation
Evaluation and use of standardized tests and inventories in individual and group assessment; analyzing reliability,
validity, normative data; interpreting measures of achievement, intelligence, aptitude, interests, attitudes, personality;
current issues; for counselors, administrators, teachers, measurement specialists. Corequisite: 07P:143 or equivalent.

07P:258 Theory and Technique in Educational Measurement
Mathematical foundations, principal results, and applications of classical test theory; perspectives on conditional error
variance; binomial error model and applications; introduction to generalizability theory; advanced measurement topics.
Prerequisite: 07P:243 or 07P:257 or consent of instructor.

07P:259 Scaling Methods
Unidimensional and multidimensional scaling techniques; introduction to available computer programs for scaling;
applications in educational and psychological research. Prerequisite: 07P:252 or equivalent. Recommended: 07P:249.

07P:262 Item Response Theory
Theoretical foundations and practical applications; mathematical models and estimation techniques; emphasis on
current applications and issues in testing; computer estimation programs. Prerequisites: 07P:243 and 07P:257.

07P:263 Consultation Theory and Practice
Same as 07C:263.

07P:265 Program Evaluation
Theoretical issues and considerations in evaluation of educational and social programs; evaluation design,
methodology; metaevaluation; evaluation utilization.

07P:269 Advanced Personality
Current research and research methods in the psychology of personality; emphasis on individual differences in
personality that have implications for teaching, learning, well-being.

07P:275 Constructivism and Design of Instruction
Theoretical foundations of constructivism; application of constructivist principles to the design of instruction.
07P:281 Cognitive Theories of Learning 3 s.h.
Theories of learning and cognition as they relate to education; development of expertise, transfer of learning, design of learning environments, use of learning technologies. Prerequisite: 07P:200 or equivalent.

07P:283 Cognitive Development 3 s.h.
Information-processing, dynamic systems, social-contextual, and neo-Piagetian theories of cognitive development and their educational implications; individual differences in cognitive development.

07P:285 Instructional Computer Simulations 3 s.h.
Theory and development of computer-based simulations, games; research on design characteristics and effectiveness; design, development, evaluation of simulation software by student teams. Prerequisites: 07P:208 and consent of instructor.

07P:292 Supervised Research in Educational Psychology 1-3 s.h.
Identification of research problems, development of research designs and materials, conducting of research studies; faculty-guided activity or seminars. Prerequisite: consent of instructor.

07P:293 Individual Instruction in Psychological and Quantitative Foundations arr.
Prerequisite: consent of instructor.

07P:299 M.A. Project: The Portfolio 3 s.h.
Individual portfolio project; reflection, revision, and presentation of educational psychology portfolio.

07P:301 Human Abilities 3 s.h.
Psychology of abilities required by or developed through schooling; theories of cognitive abilities, age, sex, ethnic differences; cultivation of intelligence through schooling. Prerequisite: 07P:143.

07P:305 Psychotherapy I: Dynamic and Phenomenological Approaches 3 s.h.
Major psychodynamic and existential-phenomenological theories of personality; emphasis on implications for psychotherapy.

07P:306 Psychotherapy III: Career Interventions 3 s.h.
Foundations of career interventions; emphasis on major assessment instruments (vocational interests, values, abilities/skills, personality) and career counseling processes, skills, techniques.

07P:309 Personality Assessment 3 s.h.
Standardized and projective techniques for personality assessment; preparation for competent administration and interpretation of varied tests and measures.

07P:310 Intelligence Assessment 3 s.h.
Standardized intelligence testing; preparation to administer and interpret intelligence tests for children and adults.

07P:311 Practicum in Counseling and Psychological Services for Gifted Students 1-6 s.h.
For graduate students who have had course work in counseling education, counseling psychology, school psychology, educational psychology, or related fields. Prerequisites: 07C:178 or equivalent and consent of instructor. Same as 07C:311.

07P:312 Psychopathology Across the Lifespan 3 s.h.
DSM IV categories, related diagnostic issues. Prerequisite: consent of instructor.

07P:313 Psychopathology in Childhood 3 s.h.
Current theories regarding the development of psychopathology in children and adolescents; current approaches to treatment for disorders in children and adolescents.

07P:315 Psychodiagnosics: Children and Adolescents 3 s.h.
Link between personality theory, child and adolescent assessment; interpretation, integration of assessment information; record reviews, interviews, objective tests, projective techniques. Prerequisites: 07P:238 and 07P:251, or equivalents.
07P:320 History and Systems of Psychology
Philosophical underpinnings of psychology, early systems in psychology, developments in the 20th century.

07P:331 Seminar: Educational Psychology I--Current Topics
Intensive investigation of a specific research topic. Prerequisite: consent of instructor.

07P:335 Advanced Motivation: Laboratory and Classroom Investigation
Contemporary theories of motivation, with focus on theory and application; in-depth study concentrating on one approach to motivation; student project.

07P:337 Advanced Practicum in School Psychology
Supervised experience in psychological interventions, consultation, counseling in school and clinic settings. Prerequisites: 07P:237, 07P:238, 07P:251, and consent of instructor.

07P:340 School Psychology Professional Seminar
Current issues influencing the practice of school psychology in relation to its historical roots. Prerequisite: consent of instructor.

07P:342 Research Project in School Psychology
Experience in research facilities on campus; writing research questions, planning a research study, writing a research article. Prerequisite: consent of instructor.

07P:345 Seminar in Psychoeducational Interventions I
Interventions used by school and support system personnel to address academic skill deficits among children, adolescents; instructional design and delivery problems associated with deficits.

07P:346 Seminar in Psychoeducational Interventions II
Interventions used by school and support system personnel to address behavioral and social/emotional status of children, adolescents.

07P:347 Home/School/Community: System Interventions
Interventions used by school and support system personnel; focus on work with parents, siblings. Same as 07C:347.

07P:348 Family Interventions
Theoretical and research literature on interventions with families of school-age children; opportunities to engage in intervention activities.

07P:350 Seminar in Evaluation
In-depth examination of selected topics. Prerequisites: two courses in evaluation, including 07P:265; or consent of instructor.

07P:352 Seminar: Behavioral Assessment and Evaluation
Broadens skills of graduate students who engage in research with exceptional persons; research designs are usually taught in the Department of Psychological and Quantitative Foundations, but because of the nature of handicapping conditions and the low incidence of some handicaps, the single-subject design yields better research information. Same as 07U:252.

07P:354 Seminar: Experimental Approaches in Counseling Research
Application of experimental methodology to study of counseling and vocational phenomena. Repeatable. Prerequisite: consent of instructor.

07P:355 Seminar: Educational Measurement and Evaluation
Critical examination of current issues and problems of the professional worker in the field of educational measurement and evaluation as reflected in research literature, other professional communication media.

07P:356 Process and Outcomes in Counseling Psychotherapy
Advanced knowledge of the state of process and outcome research on psychotherapeutic procedures. Prerequisites: Ph.D. candidacy in appropriate field and consent of instructor.

07P:358 Equating and Scaling of Educational Tests
3 s.h.
Designs and methods, including linear, equipercentile, and item response theory methods; emphasis on concepts, applications to testing programs, research. Prerequisites: 07P:243 and 07P:257, or consent of instructor.

07P:365 Psychotherapy II: Cognitive and Behavioral Approaches 3 s.h.
Major cognitive and behavioral theories of personality and psychotherapy; emphasis on implications for clinical practice. Prerequisite: consent of instructor.

07P:367 Social Psychology and Social Systems 3 s.h.
Social aspects of behavior in organizations; behavioral science theory and research on organizations, system change, transformation, leadership.

07P:375 Topics in Educational Measurement and Statistics 1-3 s.h.
Repeatable.

07P:380 Practicum in College Teaching arr.
Supervised college teaching experience in courses related to major academic areas, in collaboration with faculty course instructors.

07P:385 Teaching and Learning in Higher Education 3 s.h.
Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07B:385, 07C:385, 07S:384, 650:385.

07P:390 Supervision of School Psychology Practicum/Internship arr.
Experience supervising school psychology practicum or internship students. Prerequisites: Ph.D. standing and consent of instructor.

07P:393 M.A. Thesis in Psychological and Quantitative Foundations arr.
Prerequisite: consent of instructor.

07P:394 Supervised Research in Counseling Psychology 1-3 s.h.

07P:434 Practicum in Counseling Psychology 3 s.h.
Supervised practice in counseling services. Prerequisites: 07P:223 and 07P:225, or equivalents; and consent of instructor.

07P:437 Internship in School Psychology arr.
Supervised internship for Ph.D. students in school psychology. Prerequisites: completion of required courses and consent of instructor.

07P:450 Practicum in Program Evaluation arr.
Supervised experience in designing and implementing components of program evaluations. Prerequisites: two courses in program evaluation, including 07P:265; and consent of instructor.

07P:453 Advanced Practicum in Counseling Psychology 1-3 s.h.
Supervised work in counseling services. Repeatable. Prerequisites: 07P:434 or equivalent, and consent of instructor.

07P:455 Generalizability Theory 3 s.h.
Analysis of variance methods applied to estimation of components of various types of measurement error variance; basic concepts, mathematical foundations, models, assumptions, designs, applications; relationships with other measurement theories. Prerequisite: 07P:246 or 07P:258 or consent of instructor.

07P:465 Issues and Ethics in Professional Psychology 3 s.h.
Professional ethics; issues in professional practice of psychology.

07P:466 Psychological Services to Children, Adolescents, and Families: Legal and Ethical Standards 3 s.h.
Review of laws at state and federal level which are related to child, adolescent, and family functioning; emphasis on APA and NASP ethical standards, application of these standards, and ethical decision making models; open to graduate students who will provide services to children, adolescents, and families.
07P:493 Ph.D. Thesis in Psychological and Quantitative Foundations
Prerequisite: consent of instructor.

Instructional Design and Technology

07W:493 Ph.D. Thesis in Instructional Design and Technology
Prerequisite: consent of instructor.
Teaching and Learning

Chair: Peter Hiebowtich

Professors: Don D. Coffman, Greg Hamot, Brian Hand, Dennis C. Harper, Jo M. Hendrickson, Peter Hiebowtich, Paul M. Retish, Bonnie Sunstein, Steve Thunder-McGuire, Kathryn F. Whitmore


Clinical associate professors: Vicki Burketta, John D. Dunkhase, Ellen Herman, Pamela Ries

Assistant professors: Mary Cohen, Cos Fi, Cory Forbes, Melissa McNaught, Kyong Mi Choi, Soonhye Park, Lia Plakans, Pamela Wesely

Clinical assistant professor: Amy Shoultz

Undergraduate degrees: B.A., B.S. (granted through College of Liberal Arts and Sciences)

Graduate degrees: M.A.T., M.A., M.S., Ph.D.

Web site: http://www.education.uiowa.edu/teach

Department of Teaching and Learning programs prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All licensure programs are approved by the Iowa Department of Education. Undergraduate students pursuing a major in elementary education must meet the College of Liberal Arts and Sciences requirements for the Bachelor of Arts or Bachelor of Science; see the CLAS Student Academic Handbook.

Teacher Education Program and Licensure/Certification

Before taking required professional education courses, undergraduate students must be admitted to the Teacher Education Program (TEP). The application for admission should be submitted to the College of Education Office of Teacher Education and Student Services. Deadlines for application are March 15 and October 15 for admission to restricted course work in the following semester. Each program reviews applications and chooses a limited number of students for admission.

In order to be considered for admission, students must have a University of Iowa and cumulative g.p.a. of at least 2.70 at the time of application and must have completed a minimum of 33 s.h. of course work. For some subject areas, applicants must meet additional criteria. A limited number of applicants are accepted into each Teacher Education Program, so a 2.70 g.p.a. does not ensure admission. Admission decisions are based on grade-point average in the major and other criteria relevant to teaching success.

The application process includes submission of an application form, a writing sample, two letters of recommendation, and an Iowa criminal history check request form. Applicants are required to submit PRAXIS I test scores in mathematics, reading, and writing. Scores from either the PRAXIS computer-based tests (CBT) or the PRAXIS Pre-Professional Skills Tests (PPST) are accepted. Applicants must have a composite score of at least 522, with a minimum score of 170 on any single portion of the test. Applicants must also submit verification of completion of a 10-hour volunteer experience in a K-12 classroom setting.

If at any time after admission a student's University of Iowa and/or cumulative g.p.a. falls below 2.70, he or she is placed on probation for one semester. Students who do not attain a 2.70 g.p.a. during the probationary semester are dropped from the TEP. Students should consult a College of Education advisor in their program area, or the Office of Teacher Education and Student Services for more information on admission criteria.

Graduate students who apply to the Graduate College for a teacher licensure program must apply separately for admission to the Teacher Education Program. Deadlines for application to either program are October 15 or March 15 for admission to restricted course work in the following semester. Graduate and postbaccalaureate students may submit Graduate Record Exam (GRE) General Test scores instead of PRAXIS I scores. A combined verbal and quantitative score of at least 900 is required.

A limited number of applicants are accepted into each Teacher Education Program, so meeting the Graduate College admission requirements does not ensure admission. Admission decisions are based on grade-point average in the undergraduate major and other criteria relevant to teaching. Upon admission to the TEP, students are assigned an education advisor.

Admission to Student Teaching

Admission to the student teaching semester requires a separate application. Applications must be submitted one year before the student teaching semester. Applicants' credentials and academic and professional progress are reviewed to ensure that the student is qualified for placement in the profession. Verification that the student meets all specific program area requirements is made when the student applies for student teaching.

Consult a College of Education advisor or the Office of Teacher Education and Student Services for information about admission and requirements for student teaching in specific licensure programs.

Undergraduate TEP: Elementary Education
The undergraduate elementary education program is designed to prepare students to teach kindergarten through grade 6. In Iowa, the elementary specialization areas are designated as kindergarten through grade 8.

The College of Liberal Arts and Sciences and elementary education requirements total 113-139 s.h. Students who meet or test out of the General Education Program requirements in rhetoric, foreign language, mathematics, and other areas may be able to complete their program requirements with as few as 113 s.h.

A passing Praxis II score on the elementary content test is required for all students seeking elementary licensure in Iowa and for satisfaction of requirements for an approved Teacher Education Program.

FOUNDATION COURSES

These four courses must be completed before methods courses (Block A/B below) are begun.

07E:090 Orientation to Elementary Education 1-2 s.h.
07E:100 Foundations of Education 3 s.h.
07E:102/07S:102 Technology in the Classroom 2 s.h.
07P:075 Educational Psychology and Measurement 3 s.h.

METHODS COURSES

Block A

Three courses taken concurrently:

07E:123 Reading and Responding to Children's Literature 2 s.h.
07E:160 Methods: Elementary School Language Arts 3 s.h.
07E:164 Methods: Elementary School Reading 3 s.h.

Block B

Three courses taken concurrently:

07E:161 Methods: Elementary School Social Studies 3 s.h.
07E:162 Methods: Elementary School Science 3 s.h.
07E:163 Methods: Elementary School Mathematics 3 s.h.

Methods Practicum

Students complete a semester-length practicum and classroom management.

07E:170 Elementary Classroom Management 2 s.h.

07E:172 Reading Instruction: Teaching Practicum 4 s.h.
or
07E:174 Elementary Education: Practicum 4 s.h.

OTHER REQUIREMENTS

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:127 Physical Education and Health for Elementary Teachers 2 s.h.
07U:100 Foundations of Special Education 3 s.h.

07E:120 Methods and Materials: Music for the Classroom Teacher 2, 3 s.h.
or
07E:122 Methods and Materials: Art for the Classroom Teacher 2 s.h.
AREA OF SPECIALIZATION

Students must complete a minimum of 24 s.h. in one of the following areas of specialization: art, English language arts, ESL, hearing impaired, history, mathematics, music, reading, science, special education (Instructional Strategist I: Mild/Moderate), speech communication/theatre, or social science. Courses in the area of specialization may be taken pass/nonpass if they are offered with the pass/nonpass option.

Requirement lists for each K-8 area of specialization are available from the Department of Teaching and Learning office.

STUDENT TEACHING

Students seeking initial licensure must complete a minimum of 14 s.h. of student teaching.

- 07E:190 Supervised Teaching in the Elementary School: Interactive Phase
- 07E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase

TRANSFER STUDENTS

Before they student teach, transfer students must complete the following courses at The University of Iowa.

- 07E:090 Orientation to Elementary Education
- 07E:102 Technology in the Classroom
- 07E:123 Reading and Responding to Children's Literature
- 07E:160 Methods: Elementary School Language Arts
- 07E:161 Methods: Elementary School Social Studies
- 07E:162 Methods: Elementary School Science
- 07E:163 Methods: Elementary School Mathematics
- 07E:164 Methods: Elementary School Reading

A practicum

Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure statement describing all practicum experiences they have taken at other institutions and a release statement allowing the College of Education Office of Teacher Education and Student Services to contact all institutions where they have done professional preparatory work.

ADDING ENDORSEMENTS TO LICENSES

As an addition to the K-6 Iowa endorsement, students may complete requirements for an Iowa subject area endorsement (see "Area of Specialization," above). This option is not open to students who choose the Strategist I area of specialization.

The University of Iowa also offers an added endorsement in talented and gifted education.

**Undergraduate and Graduate TEP: Secondary Education**

Undergraduate students seeking secondary school licensure/certification are degree candidates in the College of Liberal Arts and Sciences. They must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Music, or Bachelor of Fine Arts degrees; see the CLAS Student Academic Handbook.

Graduate students may be admitted to a program leading to teacher licensure/certification as "certification only" candidates in the Graduate College. They are subject to all Graduate College policies; see the Manual of Rules and
Regulations of the Graduate College or the Graduate College section of the Catalog. Eligible graduate students also may complete initial teacher licensure/certification requirements by pursuing an M.A.T. in English education, foreign language education, or science education, or an M.A. in social studies (program B).

Licensure/certification requires a major of at least 30 s.h. of course work in a subject area taught in the secondary school. Course requirements for each major are available from the Department of Teaching and Learning office. Candidates for secondary school teaching licensure/certification also may receive approval to teach in additional subject areas by completing an approved program of 12-24 s.h. or more of course work in those areas.

Secondary school teacher preparation programs are provided in the following areas.

Art
*Coaching
English
*English as a second language
Foreign languages--Chinese, French, German, Italian, Japanese, Latin, Russian, Spanish
*Hearing impaired
*Journalism
Mathematics
Music
*Reading
Science, including *physical science, biology, chemistry, *general science, physics, earth science, and 9-12 all science
Social science, including anthropology, economics, geography, history, political science, psychology, and sociology
*All social sciences
*Talented and gifted

*Available as an additional approval area only; a major in one of the other areas is required for licensure.

An Iowa secondary teaching license qualifies holders to teach in grades 5-12. Students planning to teach art or music typically complete a program that prepares them for both elementary- and secondary-level licensure.

Secondary teacher preparation programs in mathematics and foreign language also offer a program that leads to licensure/certification as a subject matter specialist in grades K-6. This K-6 licensure/certification is available only in the same subject area as the secondary certification.

For more information and the name of an advisor, contact the Department of Teaching and Learning.

REQUIREMENTS

Undergraduates working toward licensure/certification to teach in secondary schools must complete the following requirements, in addition to the requirements of their major. All course work must be completed before student teaching.

One introduction and practicum course in the major field 2-3 s.h.
07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
07P:075 Educational Psychology and Measurement 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:171 Secondary Classroom Management (required for art, mathematics, science, social studies education) 2 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college) 1 s.h.
07U:100 Foundations of Special Education 3 s.h.
One or more methods of teaching courses in the major field 3-9 s.h.
One college-level mathematics course (except 22M:001, 22M:002, and 22M:003) 12 s.h.

For initial licensure in all subject areas, student teaching must be an all-day, full-semester experience. Most students are placed in a district within a 60-mile radius of Iowa City. Placements outside this area require special approval and are considered on an individual basis. Special programs provide experience in districts with diverse populations, including Aldine, Texas (Houston area); Adams County, Colorado (Denver area); Rialto, California; and Clark County, Nevada (Las Vegas area). In most program areas, students also may apply to student teach at international sites for the second half of the semester.

Additional information about options for student teaching and application procedures is available from the Office of Teacher Education and Student Services. Applications for student teaching must be submitted during the calendar
year before the student teaching semester. The deadline is November 15 for students planning to student teach the
following fall semester and February 15 for students planning to student teach the following spring semester.

TRANSFER STUDENTS

Transfer students must complete the following work before they student teach.

07S:102 Technology in the Classroom 2 s.h.
07S:190 Orientation to Secondary Education 0-1 s.h.
07S:195 Teaching Reading in Secondary Content Areas 1 s.h.
Appropriate methods courses
A practicum at The University of Iowa
All course work in the major

Transfer students must follow the normal application procedures. In addition, they are asked to complete a disclosure
statement describing all practicum experiences they have taken at other institutions and a release statement allowing
the College of Education Office of Teacher Education and Student Services to contact all institutions where they have
done professional preparatory work.

Graduate Programs

The Department of Teaching and Learning offers graduate programs in elementary education, secondary education,
and special education.

Elementary education programs include M.A. and Ph.D. in elementary education; M.A. in developmental reading; and
Ph.D. in language, literacy, and culture.

Secondary education programs include M.A. and Ph.D. in art education; M.A. and Ph.D. in curriculum and supervision;
M.A. and M.A.T. in English education; M.A. and M.A.T. in foreign and second languages education; Ph.D. in foreign
language and ESL education; a program leading to ESL endorsement; Ph.D. in language, literacy, and culture; M.A.
and Ph.D. in mathematics education; M.S. in mathematics with education option; M.A. and Ph.D. in music education;
M.A.T., M.S., and Ph.D. in science education; and M.A. and Ph.D. in social studies education.

Special education programs include M.A. and Ph.D. in special education; Ed.S. in special education administration;
and a program leading to special education consultant authorization.

Applicants for admission to University of Iowa graduate degree programs must meet the admission requirements of the
Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section
of the Catalog.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first
year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative
course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to
meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z
directory on the college's web site).

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one or both of the following
Ph.D. core courses.

07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

Elementary Education

M.A. in Elementary Education

The Master of Arts in elementary education is designed to prepare students to serve as team leaders, grade level or
subject area supervisors, curriculum consultants, or master teachers.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have completed an
undergraduate teacher preparation program in either early childhood or elementary education.

REQUIREMENTS
The M.A. in elementary education with thesis requires a minimum of 30 s.h. of graduate credit; the M.A. without thesis requires a minimum of 32 s.h. Students must take 24 s.h. in University of Iowa courses and complete 8 s.h. on campus. Course work completed 10 or more years before admission does not count toward the M.A.

**Elementary Education Graduate Core**

All of these (9 s.h.):

- 07B:120 Teaching in a Culturally Diverse Society (or equivalent approved by advisor) 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.

**Instructional Cluster**

Students take three courses (9 s.h.) that deal with instructional issues in the elementary classroom. The courses are drawn from one or more of the following areas: art education, music education, social studies education, science education, math education, special education, other acknowledged specialization areas. Students must choose courses outside their specialization area.

**Specialization**

Students take three courses (9 s.h.) in their specialization area, chosen in consultation with their advisor.

**Electives**

Students choose 6 s.h. of elective course work.

**COMPREHENSIVE EXAMINATION**

M.A. students are expected to pass a comprehensive exam that covers the course work in the graduate core, course work in the specialization area, and additional course work deemed appropriate by their advisor.

**M.A. in Developmental Reading**

The Master of Arts in developmental reading prepares graduate students for positions as reading specialists in kindergarten and grades 1-12. The required course work develops the skills, knowledge, and competence needed for supervisory, curricular, and remedial teaching positions in reading. The program also builds a background in reading for students who want to specialize further in the area and eventually to teach and/or conduct research at a college or university.

Successful completion of this program, combined with one year of successful teaching experience that includes teaching reading as a significant part of the responsibility, qualifies the student for certification as a reading specialist.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00; hold an early childhood, elementary, or secondary school teaching certificate; and show evidence of completing two years of successful teaching experience.

**REQUIREMENTS**

The M.A. in developmental reading with thesis requires a minimum of 33 s.h. of graduate credit; the M.A. without thesis requires a minimum of 35 s.h. Students must complete the following courses.

- 07E:171 Reading and Writing: Processes and Instruction 3 s.h.
- 07E:264 Early Literacy Development and Instruction 2-3 s.h.
- 07E:265 Reading and Writing Across Intermediate Grades 3 s.h.
- 07E:271 Advanced Reading Clinic Techniques 2-3 s.h.
- 07E:272 Advanced Reading Clinic Practicum 2-3 s.h.
- 07E:308 Seminar: Research and Current Issues (Reading) 3 s.h.
- 07S:194 Methods: Secondary Reading 2-3 s.h.

One of these:

- 07P:106 Child Development 3 s.h.
The comprehensive examination consists of two 3-hour exams. Each three-hour exam is based on an aspect of reading or literacy. With agreement of the student's advisor and committee, a comprehensive project may be substituted for the written examination in one or both areas.

Ph.D. in Elementary Education

The Doctor of Philosophy in elementary education prepares students for college and university teaching and research positions in elementary education, and for research, curriculum, supervisory, or administrative positions in public school systems and government education agencies.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least 3 years of elementary teaching experience and should have earned a master's degree or have completed a significant amount of graduate course work in a related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

REQUIREMENTS

The Ph.D. in elementary education requires a minimum of 90 s.h. of graduate credit, including 10-15 s.h. of dissertation credit. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the department chair.

To remain in the program, students must maintain the grade-point average required by the Graduate College.

Requirements for the Ph.D. are as follows.

Required Research Courses

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first
year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative
course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to
meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z
directory on the college's web site). Course selections must be consistent with other course requirements for the Ph.D.

Ph.D. Core Courses

All Ph.D. students in elementary education must complete both of the following Ph.D. core courses.
07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

Elementary Education Graduate Core

All of these (9 s.h.):
07B:120 Teaching in a Culturally Diverse Society (or equivalent approved by advisor) 3 s.h.
07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
07E:300 Design and Organization of Curriculum 3 s.h.

Instructional Cluster

Students take two courses (6 s.h.) that deal with instructional issues in the elementary classroom. The courses are
drawn from one or more of the following areas: art education, music education, social studies education, science
education, math education, special education, another acknowledged area of specialization. Students must choose
courses outside their specialization area.

Specialization

Students take four courses (12 s.h.) in their specialization area, chosen in consultation with their advisor.

Electives

Students choose 6 s.h. of elective course work.

COMPREHENSIVE EXAMINATION

As students near completion of their course work, they identify several key strands for review and synthesis. With
guidance from their advisors, students prepare for three forms of written and oral exams: they answer
take-home questions in two areas of elementary education; they submit a substantive issues paper, typically a report
of an exploratory study or a review of research literature on a topic of special interest; and they design a syllabus for an
elementary education course and write a reflective commentary that demonstrates understanding of the relationship
between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member
to develop a proposal for a study that will make an original contribution to the understanding of some aspect of
elementary education. After the proposal has been approved, students conduct research and report their findings
under the guidance of their dissertation chair.

DISSERTATION

Dissertation work ranges from 10 to 15 s.h.

Ph.D. in Language, Literacy, and Culture

The Doctor of Philosophy in language, literacy, and culture brings together scholarly traditions and contemporary theory in literacy and cultural studies. Course work provides both a broad background in relevant theoretic and research literature and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates find employment in university and college teaching, research, curriculum development, and administration of literacy programs.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least two years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned
a master's degree or have completed a significant amount of graduate course work in a literacy-related field. Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

Applications for admission and for financial aid are reviewed by December 1 each year.

REQUIREMENTS

The Ph.D. in language, literacy, and culture requires a minimum of 88-90 s.h. of graduate credit. Course work includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; 6 s.h. of a required sequence of courses in curriculum and instruction; and 9-12 s.h. of graduate course work outside the Department of Teaching and Learning (6 s.h. of that outside the College of Education). Students also earn 10-12 s.h. of dissertation credit.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07E:304</td>
<td>Schooling in the United States</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:333</td>
<td>Seminar on Teacher Education</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

COMPREHENSIVE EXAMINATION AND DISSERTATION

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisors, students prepare three forms of written and oral exams: they answer take home questions in two areas of literacy; they submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest; and they design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

For detailed information on the Ph.D. in language, literacy, and culture, see Our Programs on the Department of Teaching and Learning web site.

Secondary Education

The Department of Teaching and Learning offers, or jointly administers with departments in the College of Liberal Arts and Sciences, advanced degree programs in the following fields of professional interest: art education, curriculum and supervision, developmental reading, English education, foreign language education, mathematics education, music education, science education, and social studies education.

In some fields, only master's-level programs are offered; in others, Ph.D. programs also are offered. All degrees are described below.

M.A. in Art Education

The Master of Arts in art education is administered by the School of Art and Art History (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application should be made to the School of Art and Art History.

The program prepares highly qualified teachers of art for elementary and secondary schools and community colleges. The program's strong academic emphasis helps teachers who are creative artists to become highly literate in the history and language of art.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have completed the equivalent of the minimum course work in art required for a University of Iowa B.A. or B.F.A. in art and must have a
license/certificate to teach art. Applications must include a representative portfolio of the applicant's work, consisting of eight slide reproductions of artwork and one example of written work, which may be a paper previously written for a course or an original paper. Deficiencies in undergraduate art or courses recommended for teacher licensure/certification are evaluated following admission so that students can make up required course work concurrent with work for the degree.

REQUIREMENTS

The M.A. in art education requires a minimum of 38 s.h. of graduate credit. The plan of study includes a total of 18 s.h. in studio art and art history (either 12 s.h. of studio art and 6 s.h. of art history, or 12 s.h. of art history and 6 s.h. of studio art); a total of 8 s.h. in 07S:367 Seminar: Current Issues in Art Education; and a total of 12 s.h. in additional course work, specified after the student begins the program.

M.A. students also must complete a studio thesis or a written thesis.

Ph.D. in Art Education

The Doctor of Philosophy in art education is administered by the College of Education with the cooperation of the School of Art and Art History (College of Liberal Arts and Sciences). Application should be made to the College of Education.

The program prepares college teachers and researchers in art education and supervisors of community-based art learning programs in state departments of education and school systems. It also provides students with an opportunity to continue inquiry and creative work in art history and in studio.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an M.A. in art education or an M.F.A. from The University of Iowa, or an equivalent degree from an accredited degree-granting college or university. Applications must include a representative portfolio of the applicant's work, consisting of 12 slide reproductions of artwork and two examples of written work, which may consist of papers previously written for a course or original papers. The portfolio should be submitted to the art education office in the School of Art and Art History.

In the case of course work deficiencies, students must register for appropriate remedial courses. Two years of successful teaching experience in an elementary or secondary school is required before admission to or completion of the doctoral program.

REQUIREMENTS

The Ph.D. in art education requires at least 60 s.h. of graduate credit beyond the M.A., including at least 15 s.h. in the School of Art and Art History, 15 s.h. in art education seminars, 15 s.h. in a related area (e.g., aesthetics, anthropology, higher education, early childhood education, psychology, sociology), and 15 s.h. in thesis and tool courses. Students plan the course of study with their advisors.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses.

07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

COMPREHENSIVE EXAMINATION

The comprehensive examination includes both oral and written exams. The written exam consists of an in-depth research problem assigned by the examining committee, to be completed within 14 days. An oral exam on the project is then held. The written portion of the exam is not intended to relate directly to the dissertation proposal.

DISSERTATION

Students must satisfactorily complete a written dissertation that constitutes a contribution to scholarship, for at least 12 s.h. The student is expected to prepare a dissertation proposal and defend it before the dissertation committee. An oral
examination on the dissertation is the Ph.D. final examination.

**M.A. in Curriculum and Supervision**

The Master of Arts in curriculum and supervision prepares teachers and administrators for positions as consultants, directors, and coordinators in curriculum development. It is offered with thesis and nonthesis options.

**ADMISSION**

Students must meet the admission requirements of the Graduate College. Teaching experience is desirable.

**REQUIREMENTS**

The M.A. in curriculum and supervision with thesis requires a minimum of 30 s.h. of graduate credit; the nonthesis option requires a minimum of 32 s.h.

**Common Curriculum Core**

Total of 15 s.h., as follows:

- 07S:186 Curriculum Foundations 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.

Three of these:

- 07B:222 Introduction to Policy Analysis and Evaluation 3 s.h.
- 07B:381 Analysis and Appraisal of Curriculum 3 s.h.
- 07E:132/07S:132 Middle School Curriculum and Methods 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
- 07P:203 Learning, Technology, and Effective Teaching 3 s.h.
- 07P:205 Design of Instruction 3 s.h.
- 07P:255 Construction and Use of Evaluation Instruments 3 s.h.

**Research Core**

Students select two courses (total of 6 s.h.) in consultation with the advisor.

**Supervision Core**

Students select two courses (total of 6 s.h.) in consultation with the educational policy and leadership studies advisor.

**Cognates**

Students complete a total of 6 s.h. in a subject field such as social studies education or educational measurement.

**Thesis**

Students who elect a thesis program earn 2-4 s.h. in 07U:493 Ph.D. Thesis.

**COMPREHENSIVE EXAMINATION**

Two 3-hour comprehensive exams are required: one in curriculum and one in a related field in education or in a cognate field; or three 2-hour examinations.

**Ph.D. in Curriculum and Supervision**

The Doctor of Philosophy in curriculum and supervision is administered by the College of Education. It prepares students for leadership positions in curriculum for elementary, middle, and secondary schools, state departments, intermediate systems, and college teaching.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College. They must hold a valid teaching license/certificate, and have at least two years of teaching experience. A faculty review committee makes admission decisions.
The Ph.D. in curriculum and supervision requires a total of at least 90 s.h. of graduate credit, including other approved graduate course work.

Required Research Courses

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

Ph.D. Core Courses

Ph.D. students in curriculum and supervision must complete one or both of the Department of Teaching and Learning Ph.D. core courses.

- 07E:304 Schooling in the United States 3 s.h.
- 07S:333 Seminar on Teacher Education 3 s.h.

Common Curriculum Core

Seven of these (21 s.h.):

- 07B:222 Introduction to Policy Analysis and Evaluation 3 s.h.
- 07B:381 Analysis and Appraisal of Curriculum 3 s.h.
- 07E:132/07S:132 Middle School Curriculum and Methods 3 s.h.
- 07E:267 Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.
- 07P:205 Design of Instruction 3 s.h.
- 07P:255 Construction and Use of Evaluation Instruments 3 s.h.
- 07P:257 Educational Measurement and Evaluation 3 s.h.
- 07S:186 Curriculum Foundations 2-3 s.h.

Supervision Core

A minimum of four courses in educational policy and leadership studies, selected in consultation with advisor 12 s.h.

Electives

Courses chosen in consultation with advisor 9-12 s.h.

Cognates

All doctoral students are required to complete at least 9-12 s.h. of cognate work in two areas selected in consultation with their advisors. Suggested cognates include content-related instruction (math education, social studies education), educational foundations, educational measurement, and special education.

COMPREHENSIVE EXAMINATION

Candidates take three 3-hour comprehensive exams, one in secondary school curriculum and two in related fields in education or in a cognate field.

DISSERTATION

Ph.D. students earn 10-18 s.h. of dissertation credit in 07S:493 Ph.D. Thesis.

M.A. in English Education

The Master of Arts in English education is intended for experienced teachers of English. It provides opportunities for
professional development and preparation for department chairs, supervisors of English, and curriculum specialists for secondary schools. Application should be made to the College of Education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have taken extensive course work in English and should have taught English for at least two years.

REQUIREMENTS

The M.A. in English education requires a minimum of 30 s.h. of graduate credit. Students specialize in English education and in one or two other areas. The other area(s) may include reading, writing, curriculum, adolescent literature, or a literary area. Students and their advisors plan the program of study together. The only required course is 07S:315 M.A. Seminar: English Education. At the end of the program, students take a comprehensive examination in English education and in their chosen area(s).

Students must maintain a g.p.a. of at least 3.00 while enrolled in the program.

M.A.T. in English Education

The Master of Arts in Teaching in English education is designed for students who have an undergraduate degree in English and few or no professional education courses. Successful completion of the program enables students to receive a credential to teach English in secondary schools.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a B.A. in English or the equivalent, with an undergraduate g.p.a. of at least 3.00. They also must take the Graduate Record Exam and meet all TEP application requirements. Since the M.A.T. is a credentialing program, candidates must not have qualified previously for a credential. Applicants are expected to have no more than 6 s.h. of course work in professional education courses prior to admission.

REQUIREMENTS

The M.A.T. in English education requires a minimum of 45 s.h. of graduate credit, including the following courses.

English

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>07S:315</td>
<td>M.A. Seminar: English Education</td>
<td>arr.</td>
</tr>
<tr>
<td>08N:141</td>
<td>Approaches to Teaching Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08P:182</td>
<td>Language and Learning</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>08P:198</td>
<td>Reading and Teaching Adolescent Literature</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students may take the following English courses as part of the M.A.T. program or as part of their undergraduate program.

- A course in Shakespeare
- Three courses in American literature
- A course in British literature
- A course in nonfiction or creative writing (in addition to 08N:141)

Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>07B:180</td>
<td>Human Relations for the Classroom Teacher</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07E:102/07S:102</td>
<td>Technology in the Classroom (must be taken during student's first semester in the college)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>07P:200</td>
<td>Educational Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:100</td>
<td>Foundations of Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:114</td>
<td>Introduction and Practicum: Secondary English (must be completed before enrollment in 07S:115 and 07S:194)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:115</td>
<td>Methods: Secondary English</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:187</td>
<td>Seminar: Curriculum and Student Teaching</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>07S:190</td>
<td>Orientation to Secondary Education</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>07S:191</td>
<td>Observation and Laboratory Practice in the Secondary School</td>
<td>arr.</td>
</tr>
<tr>
<td>07S:192</td>
<td>Observation and Laboratory Practice in the Secondary School</td>
<td>arr.</td>
</tr>
</tbody>
</table>
COMPREHENSIVE EXAMINATION

The comprehensive examination involves a series of reflective projects supervised by English education faculty. The projects encompass issues explored throughout the course of study and involve integration of theory and practice.

M.A.T. in Foreign and Second Languages Education

The Master of Arts in Teaching in foreign and second languages education is designed for superior liberal arts and sciences graduates who have had few or no professional education courses. Successful completion of the program leads to elementary and/or secondary teacher licensure. The M.A.T. is available in Chinese, French, German, Japanese, Latin, Spanish, and Russian.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a bachelor’s degree with a major or a strong concentration in a second language and an undergraduate g.p.a. of at least 3.00. They also must meet all TEP application requirements.

REQUIREMENTS

The M.A.T. in foreign and second languages education requires a minimum of 67 s.h. of graduate credit. Students must complete at least 18 s.h. in graduate course work in the collaborating foreign language department and the following professional education courses.

Professional Education

- 07B:180 Human Relations for the Classroom Teacher 3 s.h.
- 07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
- 07P:200 Educational Psychology 3 s.h.
- 07S:100 Foundations of Education 3 s.h.
- 07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
- 07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college) 1 s.h.
- 07U:100 Foundations of Special Education 3 s.h.

Foreign Language Teaching

All of these:

- 07E:183/07S:183 Second Language Classroom Learning 3 s.h.
- 07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
- 07S:200 Fundamentals of Second Language Assessment 3 s.h.

Total of 21-27 s.h. from these:

- 07E:106/07S:106 Foreign Language Education Practicum I 3 s.h.
- 07E:107/07S:107 Foreign Language Education Practicum II 3 s.h.
- 07S:116 Learning to Teach Second Languages I 3 s.h.
- 07S:117 Learning to Teach Second Languages II 3 s.h.
- 07S:187 Seminar: Curriculum and Student Teaching 1 s.h.
- 07S:191 Observation and Laboratory Practice in the Secondary School arr.
- 07S:192 Observation and Laboratory Practice in the Secondary School arr.

Optional for K-12 Licensure

- 07S:189 Elementary School Special Subject Area Student Teaching 1-4 s.h.
COMPREHENSIVE EXAMINATION

A two-part comprehensive examination is required. One part covers issues in foreign language education related to theory and practice, the other covers knowledge of and proficiency in the language and/or literature of the candidate's choice.

ESL Endorsement

An ESL endorsement enables an individual to teach English as a Second Language in K-12 in the state of Iowa. Because teaching endorsements are additional areas of expertise added to a teaching license, applicants must be current students in a TEP program or licensed inservice teachers.

ADMISSION

Applicants are admitted to the ESL endorsement program twice a year; application deadlines are October 15 and March 15. Each applicant must submit a one-page essay explaining why he or she wishes to teach ESL; a transcript of all university-level course work; and evidence of having completed two semesters of foreign language beyond the language component of the College of Liberal Arts and Sciences General Education Program or a documented score of "advanced plus" on the oral proficiency interview (OPI) given in the language department. Applicants whose first language is not English must provide evidence of scoring 55 or higher on the Test of Spoken English (TSL).

M.A. in Foreign and Second Languages Education

The Master of Arts in foreign and second language education is designed for students who would like to pursue a foreign language education specialization in teaching (kindergarten through college) or in related fields (e.g., language laboratory directors, instructional materials designers, or evaluation specialists). It also offers enrichment in foreign language pedagogical knowledge for practicing teachers. Students may design programs with a special focus.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must be proficient in English and in another language and have earned at least 20 s.h. in undergraduate, upper-division foreign language course work. Applicants should submit a statement of purpose explaining their graduate study goals. A g.p.a. of at least 3.00 in undergraduate course work and some experience living, working, and/or studying in the applicant's chosen target language culture are preferred. International applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL), and at least 5 on the Test of Written English (TWE).

REQUIREMENTS

The M.A. in foreign and second languages education requires a minimum of 33-36 s.h. of graduate credit. It offers three specializations: second languages education, a target language area (may subsume language, linguistics, literature, history, geography, or civilization), and a cognate area. The cognate area may be teacher education, reading, instructional design, measurement and statistics, or another area selected in consultation with the advisor.

Students take at least 15 s.h. in second language education course work, 9 s.h. in graduate language or linguistics, and 9 s.h. in a cognate area. Students must earn 9 s.h. in courses numbered 200 or above. They also complete a research project.

Students must maintain a g.p.a. of at least 3.00 while enrolled in the program. Candidacy for the master's degree is reevaluated annually.

Suggested courses are as follows.

Foreign and Second Languages Education

Total of 15 s.h.

07E:183/07S:183 Second Language Classroom Learning 3 s.h.
07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
07S:200 Fundamentals of Second Language Assessment 3 s.h.

At least 6 s.h. from these:

07S:180 Issues in Foreign Language Education 3 s.h.
Target Language

In consultation with the advisor, students select at least 9 s.h. of graduate language courses in their area of interest.

Cognate Area

Students complete at least 9 s.h. of course work chosen in consultation with the advisor.

MASTER'S EXAMINATION

Students take a written exam during the semester in which they plan to graduate. The exam covers second language education and the two study areas selected by the student. It is written by the graduate committee, which consists of at least three faculty members, two of whom must be from foreign and second languages education.

Ph.D. in Foreign Language and ESL Education

The Doctor of Philosophy in foreign language and ESL education provides students with the necessary content-area knowledge and research skills for independent research, program administration, and varied leadership positions in foreign language and ESL education. It is designed for individuals who have demonstrated success in foreign language and ESL teaching and who wish to prepare for positions in academia, government, or the private sector where in-depth knowledge of foreign language educational issues is required.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least two years of experience teaching foreign language or ESL and should hold a master's degree or have completed a significant amount of graduate course work in a foreign language or foreign language education. Applicants must have a g.p.a. of at least 3.00 in graduate course work. International applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Application materials should include a statement of purpose explaining the applicant's professional goals, transcripts of all undergraduate and graduate work, Graduate Record Exam (GRE) General Test scores, a sample of academic writing, and three letters of recommendation.

REQUIREMENTS

The Ph.D. in foreign language and ESL education requires a minimum of 80 s.h. of graduate credit, which may include courses taken for the master's degree. Most course work must be taken at the 200 level or above. At least 30 s.h. must be taken in the core area of foreign language education, at least 10 s.h. must be in specified courses in research methodology, and 9 s.h. must be in a cognate area to be determined in consultation with the advisor.

Required Research Courses

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

Ph.D. Core Courses

All Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses.

07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.
Foreign Language Education Core

07S:183 Second Language Classroom Learning 3 s.h.
07S:184 Reading in a Second Language 3 s.h.
07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
07S:200 Fundamentals of Second Language Assessment 3 s.h.
07S:202 Second Language Program Management 3 s.h.
07S:203 Second Language Planning in Education 3 s.h.
07S:306 Proposal Writing for Second Language Research 3 s.h.

Core Electives

Students may take the following courses in addition to, but not instead of, the courses listed under "Foreign Language Education Core" above. Students must have their advisor's consent to substitute other courses as electives.

07S:180 Issues in Foreign Language Education 3 s.h.
07S:207 Reading in Non-Roman Scripts 3 s.h.
07S:208 Designing Materials for Second Language Instruction 3 s.h.
164:211 Multimedia and Second Language Acquisition 3 s.h.

COMPREHENSIVE EXAMINATION

To qualify to take the comprehensive examination, students must successfully complete the required course work and either write a review article or carry out extended research activity. The final products of these activities must be presented formally by the student to members of the comprehensive examination committee in anticipation of preparing the article or research activity for publication and presentation at a national conference. After successful completion of the pre-exam activity, the student is eligible to sit for the comprehensive examination, which includes three 3-hour exams in foreign language education and the cognate area in education.

After passing the comprehensive examination, students consult with their advisor to choose a Ph.D. dissertation committee of at least five faculty members, who approve the dissertation proposal. The student then conducts research under the primary guidance of the advisor.

Ph.D. in Language, Literacy, and Culture

The Doctor of Philosophy in language, literacy, and culture brings scholarly traditions and contemporary theory together in literacy and cultural studies. Course work provides a broad background in relevant theoretic and research literature, and opportunities to conduct original studies that explore the nature of literacy practices both in and out of school. Graduates find employment in university and college teaching, research, curriculum development, and administration of literacy programs.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have at least two years of experience teaching or tutoring language or literacy (reading, writing, English, language arts) and should have earned a master's degree or have completed a significant amount of graduate course work in a literacy-related field.

Application materials should include a statement of purpose explaining the applicant's reasons for pursuing graduate study and describing his or her future goals; transcripts of all undergraduate and graduate course work; Graduate Record Exam (GRE) General Test scores; a sample of academic writing; and three letters of recommendation.

Applications for admission and for financial aid are reviewed by December 1.

REQUIREMENTS

The Ph.D. in language, literacy, and culture requires a minimum of 88-90 s.h. of graduate credit. Course work includes an introductory seminar in language, literacy, and culture; at least 9 s.h. of additional doctoral seminars in the program; 6 s.h. of a required sequence of courses in curriculum and instruction; and 9-12 s.h. of graduate course work outside the Department of Teaching and Learning (6 s.h. of that outside the College of Education). Students also earn 10-12 s.h. of dissertation credit.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative
course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college’s web site).

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses.

07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

**COMPREHENSIVE EXAMINATION AND DISSERTATION**

As students near the completion of their course work, they identify several key strands for review and synthesis. With guidance from their advisors, students prepare for three forms of written and oral exams: they answer take-home questions in two areas of literacy; they submit a substantive issues paper, typically a report of an exploratory study or a review of research literature on a topic of special interest; and they design a syllabus for a literacy course and write a reflective commentary that demonstrates understanding of the relationship between theory and practice.

Following successful completion of all components of the comprehensive exam, students work with a faculty member to develop a proposal for a study that will make an original contribution to the understanding of some aspect of literacy. After the proposal has been approved, students conduct research and report their findings under the primary guidance of a dissertation chair.

For detailed information on the Ph.D. in language, literacy, and culture, see Our Programs on the Department of Teaching and Learning web site.

**M.A. in Mathematics Education**

The Master of Arts in mathematics education provides students with advanced specialization in mathematics and education as a better foundation for K-12 teaching.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College. Except in unusual cases, they should hold a professional license/certificate to teach school mathematics. A combined score of 1000 on the verbal and quantitative sections of the Graduate Record Examination (GRE) General Test is preferred.

**REQUIREMENTS**

The M.A. in mathematics education requires a minimum of 32 s.h. of graduate credit. Students take a minimum of 10 s.h. of course work in mathematics approved by the advisor. They also take a minimum of four courses in mathematics education, which must include 07S:235 Current Issues in Mathematics Education or 07E:235 Current Issues in Mathematics Education (2-3 s.h.) and three courses chosen from the following.

07S:230/07E:230 Workshop in School Mathematics 1-3 s.h.
07S:231/07E:231 Technology in School Mathematics 2-3 s.h.
07S:234/07E:234 Foundations of Mathematics Education 2-3 s.h.
07S:236 Teaching of Geometry 2-3 s.h.
07S:239 Teaching of Algebra 2-3 s.h.
07S:335/07E:335 Seminar: Research in Mathematics Education 2-3 s.h.

Students choose a cognate area, usually enrolling in three or more courses in the area. Suggested areas include educational psychology, educational statistics and measurement, history or philosophy of education, pure or applied mathematics, instructional design and technology, counselor education, curriculum, administration, and special education. Courses are chosen in consultation with a faculty member from the cognate area.

Students also complete a sufficient number of electives in mathematics and education, chosen with the approval of the advisor, to complete 32 s.h. of credit.

**COMPREHENSIVE EXAMINATION**

Students take three 2-hour comprehensive exams: one in mathematics education, the second in mathematics, and the third in the cognate area.

**M.S. in Mathematics with Education Option**
The Master of Science in mathematics with education option prepares licensed/certified teachers with advanced specialization in mathematics and mathematics education. It is administered by the Department of Mathematics (College of Liberal Arts and Sciences). Application should be made to the Department of Mathematics.

REQUIREMENTS

The M.S. in mathematics with education option requires a minimum of 32 s.h. of graduate credit. Students must earn a minimum of 24 s.h. in the Department of Mathematics, including the core master's program for either pure mathematics or applied mathematics as described below. They also must complete two courses in mathematics education.

Pure Mathematics

One of these sequences:

- 22M:115-22M:116 Introduction to Analysis I-II 6 s.h.
- 22M:210-22M:211 Analysis I-II 6 s.h.

One of these sequences:

- 22M:120-22M:121 Abstract Algebra I-II 6 s.h.
- 22M:205-22M:206 Introduction to Algebra I-II 6 s.h.

22M:132 General Topology 3 s.h.

Applied Mathematics

- 22M:140 Continuous Mathematical Models 3 s.h.
- 22M:142 Nonlinear Dynamics with Numerical Methods 3 s.h.
- 22M:144 Partial Differential Equations with Numerical Methods 3 s.h.
- 22M:151 Discrete Mathematical Models 3 s.h.
- 22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
- 22M:171 Numerical Analysis: Differential Equations and Linear Algebra 3 s.h.
- 22M:174 Optimization Techniques 3 s.h.

COMPREHENSIVE EXAMINATION

Students take a comprehensive examination of six hours over the required courses in either pure mathematics or applied mathematics, and education. The examination assesses the candidate's knowledge of mathematics and of the relevance of specific concepts in teaching secondary school mathematics.

Ph.D. in Mathematics Education

The Doctor of Philosophy in mathematics education prepares supervisors, teacher education personnel, community college personnel, and researchers in mathematics education. It is administered by the College of Education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate major in mathematics or the equivalent; a master's degree in mathematics, mathematics education, or education; a g.p.a. of at least 3.00; and, except in unusual circumstance, a current teaching license/certificate and at least two years of teaching experience.

REQUIREMENTS

The Ph.D. in mathematics education requires a minimum of 80-90 s.h. of graduate credit. Credit earned more than 10 years before admission to the program must be updated.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).
In addition, all Ph.D. students in the Department of Teaching and Learning must complete one of the following Ph.D. core courses.

07E:304 Schooling in the United States  
07S:333 Seminar on Teacher Education

Ph.D. students in mathematics education must complete a minimum of 36 s.h. of graduate work in the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science, including the requirements for the pure mathematics core, the applied mathematics core, or middle-grades mathematics, as follows. Electives are encouraged in the pure mathematics and applied mathematics sequences.

Pure Mathematics

22M:115-22M:116 Introduction to Analysis I-II  
22M:120-22M:121 Abstract Algebra I-II  
22M:132 General Topology

Applied Mathematics

22M:142 Nonlinear Dynamics with Numerical Methods  
22M:144 Partial Differential Equations with Numerical Methods  
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory  
22M:171 Numerical Analysis: Differential Equations and Linear Algebra  
22M:174 Optimization Techniques

Middle-Grades Mathematics

For this option, no course work may replicate undergraduate work; at least five of these courses must be completed; 22M 22M:126 Elementary Theory of Numbers and 22M:151 Discrete Mathematical Models are required unless duplicated by previous course work.

22M:100 Introduction to Ordinary Differential Equations  
22M:104 Introduction to Matrix Theory  
22M:107 History of Mathematics  
22M:108 Philosophy of Mathematics  
22M:109 Classical Analysis  
22M:126 Elementary Theory of Numbers  
22M:127 Matrix Theory  
22M:151 Discrete Mathematical Models  
22S:120 Probability and Statistics

Courses cross-listed in education do not fulfill this requirement. Students who completed their mathematics requirement at another institution must complete at least 6 s.h. of additional course work in mathematics at The University of Iowa, chosen with the advisor's approval.

Students also must complete at least five courses in mathematics education, including 07S:235 Current Issues in Mathematics Education and continuous registrations in 07S:335 Seminar: Research in Mathematics Education until the comprehensive examination is passed.

ADDITIONAL REQUIREMENTS

Students concentrate in two additional comprehensive examination areas in either the mathematical sciences or education. A minimum of three courses usually are required for a comprehensive examination area, but candidates should consult with faculty members in the areas selected to determine which courses they should take in order to adequately prepare for the examinations.

Students must demonstrate use of technology as an effective instructional tool through preparing a product and presentation of the use of technology in teaching a mathematical concept.

Students must complete a total of at least 36 s.h. in College of Education courses; this includes the course work listed above.
Upon completing the program, the student must have a cumulative g.p.a. of 3.00 or higher on all graduate work in mathematics, all University of Iowa graduate work in mathematics, all graduate work, and all University of Iowa graduate work.

COMPREHENSIVE EXAMINATION

Students take three written comprehensive examinations, one in mathematics education and two in other fields of education or mathematics; an oral examination follows the written examinations. A partial list of potential cognate areas is available from the M.A. program in mathematics education.

DISSERTATION

Students must earn 10 s.h. of dissertation credit in 07S:493 Ph.D. Thesis. Each candidate completes a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee before the candidate undertakes the study. Upon completion of the dissertation, the candidate defends the dissertation in an oral examination.

M.A. in Music Education

The Master of Arts in music education provides students with deeper insights into music, the theory and practice of music education, and the role of music in the school curriculum. The degree requires 33 s.h. of graduate credit and is offered with or without thesis.

The program is administered by the School of Music (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application is made to the School of Music.

Ph.D. in Music Education

The Doctor of Philosophy in music education prepares students for teaching, research, and administrative posts. Graduates find employment as college teachers of music education classes and activities; as band, chorus, and orchestra directors; and as administrators of music departments and schools of music. Some apply their skills in public schools as music supervisors, research and curriculum consultants, and directors of city or district school music programs.

The program is administered by the School of Music (College of Liberal Arts and Sciences) in cooperation with the College of Education. Application is made to the School of Music.

M.A.T. in Science Education

The Master of Arts in Teaching in science education is designed primarily for graduates of a bachelor's degree program in science who decide that they would like to become teachers. It features advanced work in science along with the courses required for certification, enabling students to earn a master's degree and teaching certification at the same time.

The program assumes students have completed considerable course work in science (at least 56 s.h.) as undergraduates, but no previous course work in education. Students' science course work should be equivalent to that required by the University of Iowa Science Education Program (College of Liberal Arts and Sciences).

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a bachelor's degree with a major or equivalent in one of the sciences. A g.p.a. of at least 3.00 is required for admission and must be maintained throughout the program. Applicants must meet all TEP application requirements.

REQUIREMENTS

The M.A.T. in science education requires a minimum of 48 s.h. of graduate credit.

Professional Education Sequence Foundation

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
07P:200 Educational Psychology 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:171 Secondary Classroom Management 2 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college)  
07U:100 Foundations of Special Education

Science education courses are taken in the following sequence.

07S:151 Science Teaching and Practice with Early Learners  
07S:152 Methods of Teaching Science

These two taken concurrently:

07S:153 Instructional Issues in Teaching Science  
07S:179 Secondary School Science Practicum

These taken concurrently:

07S:187 Seminar: Curriculum and Student Teaching  
07S:191 Observation and Laboratory Practice in the Secondary School  
07S:192 Observation and Laboratory Practice in the Secondary School

Science Specialization

The following courses are required for the undergraduate degree in science education at The University of Iowa. They need not be repeated by M.A.T. candidates who need one or more advanced courses in their major science area, or by students from other interdisciplinary science discipline programs that prepare teachers for grades 6-9.

Both of these:

097:128 Meaning of Science  
097:130 Science in Historical Perspective

Two of these (unless completed during undergraduate study):

097:102 Societal and Educational Applications of Earth Science and Environmental Science  
097:103 Societal and Educational Applications of Biological Sciences  
097:105 Societal and Educational Applications of Physical Sciences  
097:106 Societal and Educational Applications of Chemical Concepts  
097:140 Problems in Integrating the Teaching of Environmental Science

Electives

A minimum of one graduate course in biology, chemistry, earth science, or physics is required. Students who have satisfied portions of the required science course work listed above must take additional science course work to meet the minimum requirement of 48 s.h.

COMPREHENSIVE EXAMINATION

Students complete comprehensive examinations before their student teaching semester. Two comprehensive exams, one in science education and one in a science specialization area, are required. They may not duplicate course examinations in these areas. The science education exam, under the guidance and supervision of the examining committee, consists of two parts, written and oral. Detailed requirements for the science education comprehensive examination are available from the Department of Teaching and Learning office.

M.S. in Science Education

The Master of Science in science education is designed for teachers and supervisors (K-college) and professionals in related fields, such as medical education, college teaching, museum program management, and outreach programs. The program is intended to provide experience in understanding teaching and learning, and the research processes required to advance the field.

ADMISSION
Applicants must meet the admission requirements of the Graduate College. They should hold an undergraduate major in a science area (or combination of science areas), in science education, or in elementary education with a science emphasis. The department recommends that applicants have teaching licensure/certification unless they are preparing for careers in allied health, museums, or community colleges.

**REQUIREMENTS**

The M.S. in science education requires a minimum of 38 s.h. of graduate credit in four areas: science education, education, research, and science. Students' individual programs of study are approved by the science education faculty.

The following courses are required.

- 07S:250 Assessment in Teaching and Research (no substitute for this course) 3 s.h.
- 07S:257 Learning in the Science Classroom (no substitute for this course) 3 s.h.
- 07S:259 Advanced Pedagogy (no substitute for this course) 3 s.h.
- 07S:355 Research in Science Education (taken twice) 6 s.h.
- Two science content courses chosen with advisor 6 s.h.

At least 13 s.h. chosen from these:

- 07C:338 Essentials of Qualitative Inquiry 3 s.h.
- 07E:300 Design and Organization of Curriculum 3 s.h.

- 07E:304 Schooling in the United States 3 s.h.
- or
- 07S:333 Seminar on Teacher Education 3 s.h.

- 07P:143 Introduction to Statistical Methods 3 s.h.
- 07P:200 Educational Psychology 3 s.h.
- 07P:202 Understanding Educational Research (no substitute for this course) 3 s.h.
- 07P:220 Quantitative Educational Research Methodologies 3 s.h.
- 07P:275 Constructivism and Design of Instruction 3 s.h.
- 07S:256 Science Education: The Nature of Science 3 s.h.
- 07S:258 Writing in the Science Classroom 3 s.h.
- 07S:393 M.A. Thesis 2-4 s.h.
- 160:250 Introduction to Rhetoric of Science 3 s.h.
- A qualitative or quantitative research methods course chosen with advisor 3 s.h.

**Master's Examination**

Students must complete a thesis (07S:393 M.A. Thesis). A final oral examination is administered on campus in which the candidate defends his or her thesis. This examination includes a critical inquiry into the purposes, methods, and results of the thesis research investigation.

The final examination is conducted by a committee of no fewer than three members of the graduate faculty. In some cases, the committee must include a member from outside science education; consult the department.

**Ph.D. in Science Education**

The Doctor of Philosophy in science education is designed for individuals who aspire to positions as college and university science educators; major supervisors in national, state, and local systems; teachers in small liberal arts colleges; instructors of general education science courses at major universities; research directors in science education; and professionals in medical and/or allied health education.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College. They should have completed a bachelor's degree in a science area (or combination of science areas), in science education, or in elementary education with a
science emphasis; have a cumulative g.p.a. of at least 3.00 on undergraduate and graduate work; and have a combined score of at least 1000 on the verbal and quantitative portions of the Graduate Record Exam (GRE) General Test. Applicants must submit three letters of recommendation; a statement of purpose describing their reasons for pursuing graduate work and their goals for graduate study; and an example of their academic writing.

REQUIREMENTS

The Ph.D. in science education requires a minimum of 85 s.h. of graduate study, as follows.

Ph.D. Core Courses

All Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses. Students may not substitute other courses for these.

07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.

Science Education

All of these (15 s.h.):

07E:256/07S:256 Science Education: The Nature of Science 3 s.h.
07E:257/07S:257 Learning in the Science Classroom (no substitute for this course) 2-3 s.h.
07E:258/07S:258 Writing in the Science Classroom 3 s.h.
07E:259/07S:259 Advanced Pedagogy (no substitute for this course) 3 s.h.
07S:250 Assessment in Teaching and Research (no substitute for this course) 3 s.h.
160:250 Introduction to Rhetoric of Science 3 s.h.

Education

All of these (9 s.h.):

07E:300 Design and Organization of Curriculum 3 s.h.
07P:200 Educational Psychology 3 s.h.
07P:275 Constructivism and Design of Instruction 3 s.h.

Research Methods

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site). Course selections must be consistent with the following research methods requirements.

Science education Ph.D. students also must complete the following research method course.

07E:451/07S:451 Advanced Qualitative Data Analysis 3 s.h.

Research in Science Education

Both of these (18 s.h.):

07S:350 Seminar: Science Education 3 s.h.
07S:355 Research in Science Education 15 s.h.

Science Area

A family of courses in a major science area 12 s.h.
DISSERTATION

Ph.D. students earn 10 s.h. of thesis credit (07U:493 Ph.D. Thesis).

M.A. in Social Studies Education

The Master of Arts in social studies education provides an opportunity for interdisciplinary work in education, history, social science, or related areas for classroom teachers, high school department chairs, supervisors, and others interested in advancing their competence in history and the social sciences and greater proficiency in teaching and supervision.

Students choose one of two programs. Program A provides interdisciplinary study in education, history, social science, or related areas for classroom teachers or others interested in advancing their competence in instruction and their subject area. Program B is for individuals who have a bachelor's degree in history or social sciences and who wish to obtain a teaching license/certificate while earning the M.A.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They should have a bachelor's degree in education, history, or one of the social sciences from an accredited institution; a cumulative g.p.a. of at least 3.00; a g.p.a. of at least 3.00 in history and/or social science courses; a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test; and two letters of recommendation. Evidence of writing ability in a completed major paper or essay also is required. Typically, applicants to Program A are expected to hold a secondary teaching license/certificate.

After declaring a social studies education major, M.A. students must maintain a g.p.a. of at least 3.00.

PROGRAM A REQUIREMENTS

Program A of the M.A. in social studies education requires a minimum of 38 s.h. of graduate credit distributed among three concentration fields in history and social sciences (or related areas) and education, with at least 10 s.h. in each of three fields.

At least 9 of the total 38 s.h. must be earned in graduate courses numbered 200 or above distributed among the three concentration fields.

Students who choose the thesis option complete a research or investigative problem. If the thesis is research or investigation in history, social science, or a related area, the thesis director is a member of the appropriate department. If the thesis is an investigative problem in social studies education, the thesis director is a College of Education faculty member.

PROGRAM A COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three 2-hour written exams, one on each of the three concentration fields.

PROGRAM B REQUIREMENTS

Program B of the M.A. in social studies education requires a minimum of 38 s.h. of graduate credit. Program B students should have completed considerable work in the social sciences and/or history as undergraduates. Students who have been accepted to the University of Iowa undergraduate or postbaccalaureate Teacher Education Program in secondary social studies education cannot apply credit they earned in required licensure courses as undergraduate or postbaccalaureate students to the required 38 s.h. for the M.A. in social studies education. However, such credit does count toward state teaching licensure.

Program B students who completed 07S:111 Introduction and Practicum: Secondary Social Studies and/or 07S:170 Methods: Secondary Social Studies as undergraduate or postbaccalaureate students at The University of Iowa are required to retake these courses during the M.A. program and immediately before student teaching. Required teaching licensure course work completed at other colleges or universities is reviewed on a case-by-case basis.

Program B students who were accepted to the undergraduate Teacher Education Program before they received a baccalaureate must complete a college-level math course.

For licensure, students admitted to the M.A. in social studies education must complete 30 s.h. in a history or social science area; the 30 s.h. may include previous undergraduate and/or graduate-level course work. Required professional education course work not completed as part of the baccalaureate degree must be completed for licensure.
Students also must complete 15 s.h. in an additional history or social science licensure area; previous undergraduate course work may apply.

Students must complete all of the following courses, unless they completed some of them as part of their bachelor's degree. In such cases, the semester-hour requirement for Program B is reduced accordingly, but it never falls below 38 s.h. All students must take the course work required for meeting all Iowa Department of Education requirements for teacher licensure/certification.

Professional education courses:

07B:180 Human Relations for the Classroom Teacher 3 s.h.
07E:102/07S:102 Technology in the Classroom (must be taken during student's first semester in the college) 2 s.h.
07P:200 Educational Psychology 3 s.h.
07S:100 Foundations of Education 3 s.h.
07S:111 Introduction and Practicum: Secondary Social Studies 3 s.h.
07S:170 Methods: Secondary Social Studies 3 s.h.
07S:171 Secondary Classroom Management (for students admitted March 2008 and after) 2 s.h.
07S:187 Seminar: Curriculum and Student Teaching 3 s.h.
07S:190 Orientation to Secondary Education (must be taken during student's first semester in the college) 1 s.h.
07S:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:192 Observation and Laboratory Practice in the Secondary School 6 s.h.
07S:195 Teaching Reading in Secondary Content Areas (must be taken during student's first semester in the college) 1 s.h.
07S:233 History and Foundations of Social Studies Education 3 s.h.
07S:341 Infusing a Global Perspective into the Curriculum 3 s.h.
07U:100 Foundations of Special Education 3 s.h.

Subject area specialization courses: a minimum of 9 s.h. of course work in history or a social science is required; students should take at least one course taught by the instructor who will serve on the examining committee.

PROGRAM B COMPREHENSIVE EXAMINATION

The comprehensive examination consists of three 2-hour exams: one on the subject area specialization, one on general professional education, and one on social studies education.

Ph.D. in Social Studies Education

The Doctor of Philosophy in social studies education prepares secondary department chairs, supervisors, curriculum directors, teacher education personnel, and college instructors in the social sciences and in social studies education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a bachelor's degree in history, the social sciences, or education; a master's degree in history, the social sciences, or education; a cumulative g.p.a. of at least 3.00; and a combined verbal and quantitative score of at least 1200 on the Graduate Record Examination (GRE) General Test. At least two years of teaching experience is strongly preferred. Applicants who did not write a thesis as part of their M.A. must submit seminar papers or field research as equivalents.

REQUIREMENTS

The Ph.D. in social studies education requires a minimum of 90 s.h. of graduate credit, including course work and 10 s.h. of dissertation credit.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z directory on the college's web site).

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one or both of the following Ph.D. core courses.

07E:304 Schooling in the United States 3 s.h.
07S:333 Seminar on Teacher Education 3 s.h.
The remaining course work must be distributed among history, social sciences or related areas, and professional education, depending on the student's background and goals.

Seminars and courses numbered 200 or above are required in each of the study areas that constitute the major. Students must take 9 s.h. of required courses in social studies education, including 07E:233 History and Foundations of Social Studies Education or 07S:233 History and Foundations of Social Studies Education (3 s.h.), and 6 s.h. of 07E:196 Topics in Teaching and Learning or 07S:196 Topics in Teaching and Learning (social studies emphasis) and/or 07E:277 Seminar: Social Studies Education or 07S:277 Seminar: Social Studies Education.

**COMPREHENSIVE EXAMINATION**

Students take three 3-hour examinations, one in each of the study areas. Depending on the distribution of course work, the nine hours of written examinations may be rearranged. The Ph.D. examining committee consists of five members, who are selected according to the nature of the student's Ph.D. program and distribution of course work. An oral examination is conducted by the committee following the written exam.

**DISSERTATION**

Ph.D. candidates must complete a dissertation on a research problem in social studies education. The candidate must present a prospectus of the proposed research to the dissertation committee before undertaking the study. Upon completion, the candidate defends the dissertation in an oral exam.

**Special Education**

Special education programs are offered in K-6 and 7-12 Instructional Strategist I: Mild/Moderate, and K-12 Instructional Strategist II: BD/LD. These programs are designed to prepare graduates for positions in public schools, local and state education agencies, clinical settings, and institutions of higher education. All teacher licensure/certification programs are approved by the Iowa Department of Education.

A program leading to special education licensure/certification in Instructional Strategist I: Mild/Moderate (K-6) is available to undergraduates (see "Licensure and Teacher Education Certification"/"Elementary Education" at the beginning of this section). Undergraduates who wish to pursue careers in special education should contact the Department of Teaching and Learning.

**M.A. in Special Education**

The Master of Arts in special education prepares individuals to deliver appropriate levels of service to students with disabilities at the elementary and secondary levels, in either public or private settings. Applicants with a master's degree and special education certification may request admission for the purpose of obtaining an additional area of special education licensure/certification (i.e., professional improvement). Students admitted to the M.A. program typically receive licensure/certification in at least one area upon completing the program.

**ADMISSION**

Applicants must meet the admission requirements of the Graduate College. They must have an undergraduate g.p.a. of at least 3.00 (and/or at least 3.00 on a minimum of 12 s.h. of graduate course work). A combined verbal and quantitative score of at least 1000 on the Graduate Record Exam (GRE) General Test is preferred. International applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Application materials must include a completed Graduate College application form; copies of official transcripts for all college course work; an official report of Graduate Record Examination test scores; three current letters of recommendation; and evidence of experience and/or teacher licensure/certification. An interview may be requested.

Final admission decisions are made by the special education graduate admissions committee.

**REQUIREMENTS**

The M.A. in special education requires a minimum of 32 s.h. of graduate credit. Contact the Department of Teaching and Learning for specific program requirements.

**Ed.S. in Special Education Administration**

The Ed.S. in special education administration is offered jointly with the Department of Educational Policy and Leadership Studies. See Educational Policy and Leadership Studies in the Catalog.
Special Education Consultant Authorization

The Special Education Consultant authorization program prepares consultants to serve in special education programs.

ADMISSION

Admission to the M.A. program or to a certification program in special education is required. Applicants must hold or meet the requirements for the special education teaching endorsement congruent with their desired consultant authorization. Teaching endorsements must be documented by copies of teaching credentials.

Applicants also must have completed four years of successful teaching experience, two of which must be congruent with their desired consultant authorization. They must provide evidence of successful teaching (e.g., written statements from school personnel documenting years of teaching, type of students served, and success as a classroom teacher).

Documentation of certifications and teaching experience should be submitted with the application for admission to the Graduate College.

REQUIREMENTS

The Special Education Consultant authorization program requires at least 38 s.h., including credit required for the M.A. and the teaching endorsement program.

Students who already hold an M.A. in special education and an endorsement congruent with their desired consultant authorization must complete the following three courses.

07E:300 Design and Organization of Curriculum
3 s.h.
07P:263 Consultation Theory and Practice
3 s.h.
07P:347 Home/School/Community: System Interventions
3 s.h.

Students without an M.A. in special education must complete an M.A. and teaching endorsement program in special education congruent with their desired consultant authorization, plus the three courses listed above (07E:300 Design and Organization of Curriculum, 07P:263 Consultation Theory and Practice, 07P:347 Home/School/Community: System Interventions), for a total of at least 38 s.h.

Ph.D. in Special Education

The Doctor of Philosophy in special education prepares students for teaching and research positions in higher education, and for curriculum, supervisory, and research positions in state and local education agencies. The program permits students to study and practice extensively in their special education interest area and in an interest area outside of special education.

ADMISSION

Applicants must meet the admission requirements of the Graduate College. They must have a master's degree or equivalent in special education; those without an M.A. thesis must have completed an equivalent project. Applicants should have a graduate g.p.a. of at least 3.50 and a combined verbal and quantitative score of at least 1000 on the Graduate Record Exam (GRE) General Test. International applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants should have at least one year of full-time teaching experience with exceptional children; several years are preferred.

Application materials must include a completed Graduate College application form; copies of official transcripts for all college course work; an official report of Graduate Record Examination test scores; three current letters of recommendation; and evidence of experience and/or teacher licensure/certification. An interview may be requested.

Final admission decisions are made by the special education graduate admissions committee.

REQUIREMENTS

The Ph.D. in special education requires a minimum of 90 s.h. of graduate credit. The study plan includes an emphasis on research skills, all facets of special education, and at least one specialization area.

All College of Education Ph.D. students must complete 07X:150 Introduction to Educational Research during the first year of their Ph.D. program. They also must complete an additional minimum of 15 s.h. in qualitative and quantitative course work, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Courses to meet this requirement must be chosen from Required Ph.D. Research Courses (see Course Information in the A-Z...
directory on the college's web site).

In addition, all Ph.D. students in the Department of Teaching and Learning must complete one of the following Ph.D. core courses.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07E:304</td>
<td>Schooling in the United States</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:333</td>
<td>Seminar on Teacher Education</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

All Ph.D. students in special education must complete the following courses.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07B:236</td>
<td>Administration of Students with Special Needs</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07U:343</td>
<td>Proseminar: Issues, Trends, and Research in Special Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>07U:344</td>
<td>Proseminar: Issues, Trends, and Research in Special Education II</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

Students must complete an interdisciplinary minor in a discipline outside of special education (minimum of 12 s.h.).

Students also are required to write the comprehensive examination and complete a doctoral dissertation, earning a minimum of 10 s.h. in 07U:493 Ph.D. Thesis.

**Financial Support**

**Elementary Education**

A number of teaching assistantships are available for graduate students in early childhood and elementary education. Assignments vary. Some involve supervising undergraduate majors enrolled in practicums; others involve teaching sections of undergraduate methods courses and supervising student teachers. Most assistantships are classified as one-half-time, which permits students to register for a maximum of 12 s.h. of credit per semester. Graduate assistants must register for at least 6 s.h. per semester.

All assistantships are awarded on a competitive basis. Applicants must have been admitted to regular status in the Graduate College and to an advanced program in the College of Education. For information about assistantships, contact the chair of the Department of Teaching and Learning.

**Secondary and Special Education**

A limited number of assistantships are available for graduate students in secondary and special education. Assignments vary. Some involve teaching undergraduate courses or supervising practicum experiences; others consist primarily of research activities. Graduate assistants may register for a maximum of 12 s.h. and a minimum of 6 s.h. per semester.

Graduate students in secondary education also may be eligible for assistantships in some College of Liberal Arts and Sciences departments. Students with appropriate credentials should apply directly to the specific department or consult the College of Education advisor in the appropriate field.

Traineeships in selected licensure/certification and master's degree programs are available to full-time special education students.

**Teaching and Learning Courses**

**Elementary Education**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07E:021</td>
<td>Oral Interpretation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Communication studies majors may apply this course to the following area requirement. AREA: Practice.

Prerequisites: (for 036:021) g.p.a. of at least 2.60 and 30 s.h. of credit. Same as 036:021.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>07E:050</td>
<td>Opportunities in Education</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Introduction for underrepresented students to the teaching profession and its widely varied opportunities; faculty, students, recipients of awards in education; tours of Iowa City schools; reflection on and personal integration of class learning experiences, consideration of future plans. Same as 07S:050, 07U:050.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| 07E:090     | Orientation to Elementary Education       | 1-2 s.h.

Overview of elementary education expectations, including options for student teaching; classroom observation, lesson planning, performance indicators, INTASC standards, classroom management, information about mandatory child abuse reporting, blood-borne pathogens, professional ethics. Eight-week course.
07E:100 Foundations of Education
Overview of American education, preschool through secondary; aims, history, philosophy of education; professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues. Prerequisite: admission to TEP. Same as 07S:100.

07E:102 Technology in the Classroom
Same as 07S:102.

07E:104 Remedial Methods in Speech and Hearing
Emphasis on elementary grades. Usually taken in conjunction with 07E:192, which provides approximately 70 hours of supervised clinical practice in elementary schools. Primarily for communication sciences and disorders majors. Prerequisite: consent of instructor.

07E:106 Foreign Language Education Practicum I
Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07S:106.

07E:107 Foreign Language Education Practicum II
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Corequisite: 07S:117. Same as 07S:107.

07E:110 Teaching K-12 Second Language Learners
Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Prerequisite: admission to TEP. Same as 07S:110.

07E:114 Parent-Child Relationships
Roles and relationships within and between families, culture, society; identify (family) resources and concerns based on children's development, abilities.

07E:118 ESL Practicum I
Skill development for teaching English as a second language; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07S:118.

07E:119 ESL Practicum II
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice English as a second language teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:117. Same as 07S:119.

07E:120 Methods and Materials: Music for the Classroom Teacher
Development of music skills, techniques, knowledge of methods and materials for teaching music to young children; for elementary education majors. Prerequisite: admission to TEP.

07E:122 Methods and Materials: Art for the Classroom Teacher
Projects, techniques, processes in art for elementary majors; combination lecture and studio; painting, drawing, printmaking, sculpture, and crafts with materials and tools commonly available in the elementary schools. Prerequisite: admission to TEP. Same as 01E:195.

07E:123 Reading and Responding to Children's Literature
Reading and teaching children's literature in elementary classrooms for aesthetic, personal, social, and critical purposes; readings from a wide range of genres; approaches to teaching children's literature; recent trends and issues. Prerequisite: admission to elementary TEP.

07E:124 Differentiating Projects with Technology
Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio. Same as 07S:124.

07E:125 Differentiated Instruction for the Gifted
Program options for K-12 gifted students; student abilities and needs linked with various curriculums; case studies, school materials. Same as 07S:125.

07E:126 Reading for High-Ability Students
Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07S:126, 07U:126.

07E:127 Physical Education and Health for Elementary Teachers 2 s.h.
Methods, curriculum. Prerequisite: admission to TEP.

07E:128 Differentiating through Advanced Technology 1 s.h.
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07S:128, 07U:128.

07E:129 Learning and Leadership for Gifted and Talented Students 1 s.h.
Same as 07S:129, 07U:129.

07E:132 Middle School Curriculum and Methods 3 s.h.
Junior high and middle school development compared; characteristics of exemplary programs, disciplinary and interdisciplinary trends; variety of teaching methods (group and individual); hands-on activities. Prerequisite: admission to TEP. Same as 07S:132.

07E:134 Parent-Teacher Communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 07P:134, 07U:134.

07E:136 Home/School/Community Partnerships 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07P:136, 07S:136, 07U:136.

07E:143 Composing Art Workshops 3-4 s.h.
Application of studio methods to teaching children in Saturday Children's Art Class Program. Prerequisite: 01E:196. Same as 01E:143.

07E:145 Methods and Materials: General Music 3 s.h.
Methods for teaching general music in elementary and secondary schools. Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096.

07E:160 Methods: Elementary School Language Arts 3 s.h.
Theoretical foundations and practical skills for designing and implementing effective language arts instruction and assessment, grades K-6. Prerequisite: admission to elementary TEP. Corequisite: 07E:164.

07E:161 Methods: Elementary School Social Studies 2-3 s.h.
Objectives and content for grades K-6; integrated approaches, community-based learning. Prerequisite: admission to elementary TEP. Corequisites: 07E:162 and 07E:163.

07E:162 Methods: Elementary School Science 2-3 s.h.
Principles and concepts of science instruction in elementary school for preservice instruction of elementary education majors; emphasis on techniques that characterize new approaches to science. Prerequisite: admission to elementary TEP. Corequisites: 07E:161 and 07E:163.

07E:163 Methods: Elementary School Mathematics 2-3 s.h.
Content; techniques of teaching and means of assessment for K-6 mathematics. Prerequisite: admission to TEP. Corequisites: 07E:161 and 07E:162.

07E:164 Methods: Elementary School Reading 3 s.h.
Theoretical foundations and practical skills for designing and implementing effective reading instruction and assessment, grades K-6. Prerequisite: admission to elementary TEP. Corequisite: 07E:160.

07E:170 Elementary Classroom Management 1-3 s.h.
07E:171 Reading and Writing: Processes and Instruction 3 s.h.
Factors that contribute to individuals' ease or difficulty in learning to read and write; issues, techniques in classroom literacy instruction and assessment. Prerequisites: 07E:160 and 07E:164 for elementary education majors.

07E:172 Reading Instruction: Teaching Practicum 3-4 s.h.

07E:173 Methods: Middle School Mathematics 3 s.h.
Subject matter content, teaching and assessment techniques for grades 5-9 math; how students learn mathematics; mathematics curricular planning for all students. Prerequisite: 07S:095 or consent of instructor. Same as 07S:134.

07E:174 Elementary Education: Practicum arr.
Experience conducting instruction for children; four schoolroom sessions and one on-campus meeting weekly. Prerequisite: completion of appropriate area of specialization methods block. Co-requisite: 07E:170.

07E:175 Linguistic Diversity in the Classroom 3 s.h.
Topics related to linguistic diversity in the classroom grades 1-12; optimal teaching techniques for positive academic outcomes of linguistically diverse students. Same as 07S:175.

07E:176 Teaching Elementary School Science 3 s.h.
Advanced science methods for elementary education majors seeking a science specialization. Prerequisite: 07E:162.

07E:180 Drama in the Classroom 3 s.h.
Theories of community, culture, identity in relation to language arts teaching and learning; emphasis on incorporating multiple literacies, both oral and print, into language arts curricula; action research involving oral literacy. Same as 049:101.

07E:181 ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Prerequisites: able to perform basic computer functions and use a World Wide Web browser. Same as 07C:181, 07P:181, 07S:181, 07U:181, 07X:181.

07E:182 Language and Learning 2-3 s.h.
How language reflects and constructs learners' identities and cultures; readings related to oral and written language, native and second language development, linguistic diversity; discussion of the relationship of language theory to schools of language instruction. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as 07S:182, 08P:182.

07E:183 Second Language Classroom Learning 3 s.h.
Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 039:177, 07S:183, 164:171.

07E:186 Curriculum Foundations 2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07S:186, 164:173.

07E:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Experience in developing course materials for classes offered through the Belin-Blank Center for Gifted Education. Same as 07C:188, 07S:188, 07U:188.

07E:190 Supervised Teaching in the Elementary School: Interactive Phase arr.
Student teaching at the elementary level (K-9). Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:191.

07E:191 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase arr.
Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:190.
07E:192 Special Area Student Teaching
Supervised teaching and observation in specific areas of elementary curriculum (see ISIS for areas offered).
Prerequisite: consent of instructor.

07E:193 Independent Study
Prerequisites: senior standing and consent of instructor.

07E:196 Topics in Teaching and Learning
Repeatable. Prerequisite: consent of instructor. Same as 07S:196, 07U:196.

07E:197 Supervised Teaching Early Childhood Center: Interactive Phase

07E:198 Supervised Teaching Pre- and Post-Active Phase
Prerequisite: application to the Office of Teacher Education and Student Services. Corequisite: 07E:197.

07E:204 Literature for Children II
Current theory, research, and practice in reading and responding to children's literature; genre and topic vary. Same as 07S:204, 08P:204.

07E:230 Workshop in School Mathematics
Recent developments in school mathematics teaching methods and curriculum relevant to a selected issue; one to three weeks of intensive examination, experience. Same as 07S:230.

07E:231 Technology in School Mathematics
Methods, materials, issues, pedagogy, assessment; use, evaluation of technology for mathematics teaching and learning; implications for organization, development of course content. Same as 07S:231.

07E:233 History and Foundations of Social Studies Education
Same as 07S:233.

07E:234 Foundations of Mathematics Education
History of U.S. mathematics education; learning theory applied to teaching, learning mathematics; curriculum design; curriculum/standards and achievement patterns in the United States and other countries; equity; research literature. Same as 07S:234.

07E:235 Current Issues in Mathematics Education
Recent curriculum developments, experimental programs, research relevant to classroom instruction, trends in education that may have a significant impact on mathematics programs. Same as 07S:235, 22M:195.

07E:250 Assessment in Teaching and Research
Formative assessment as a tool for teaching and learning; principles and practices; evaluation of tools for assessing learning/achievement. Same as 07S:250.

07E:251 Preparation of Curriculum Materials for School Science
Preparation of instructional materials for science courses. Repeatable. Same as 07S:251.

07E:252 Designing Strategies for Science Instruction
Strategies and instructional models characterizing science instruction at the elementary, secondary, college levels. Offered spring semesters and summer sessions. Same as 07S:252.

07E:256 Science Education: The Nature of Science
Relationship between scientists’ work and current theoretical and practical portrayals of the nature of science in K-16 education. Same as 07S:256.

07E:257 Learning in the Science Classroom
Assumptions about learning and about learning theories and their impact on pedagogical actions; how some concepts are planned and implemented. Same as 07S:257.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>07E:258</td>
<td>Writing in the Science Classroom</td>
<td>3 s.h.</td>
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<td></td>
<td>Literacy in the science classroom; theoretical and pedagogical perspectives; practical classroom activities that lead to effective writing and increased learning. Same as 07S:258.</td>
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<tr>
<td>07E:259</td>
<td>Advanced Pedagogy</td>
<td>3 s.h.</td>
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<td></td>
<td>Theoretical and practical perspectives on pedagogy; how to assess practice, provide feedback, and build learning pathways for teachers. Same as 07S:259.</td>
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<tr>
<td>07E:260</td>
<td>Restructuring Science Courses</td>
<td>2-3 s.h.</td>
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<td></td>
<td>Constructivist learning model applied to existing science courses; emphasis on student-centeredness. Repeatable. Same as 07S:260.</td>
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<tr>
<td>07E:264</td>
<td>Early Literacy Development and Instruction</td>
<td>2-3 s.h.</td>
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<td></td>
<td>Understanding of early reading and writing experiences; relationship of reading to other communication areas; knowledge of instructional approaches, techniques, materials, assessment procedures; interrelationship of home and school experiences; identification of current issues and relevant research.</td>
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<tr>
<td>07E:265</td>
<td>Reading and Writing Across Intermediate Grades</td>
<td>3 s.h.</td>
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<td></td>
<td>Issues in teaching, learning, and assessment of students grades 4-9; fostering positive literate identities, literacy engagement, strategies for reading, writing, and critically responding to texts in a range of genres and formats and across content areas.</td>
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<tr>
<td>07E:267</td>
<td>Inquiry-Based Curriculum Development in Early Childhood and Elementary Classrooms</td>
<td>3 s.h.</td>
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<td></td>
<td>Theoretical and practical organization of developmentally appropriate curricula and teaching methods to promote learning.</td>
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<tr>
<td>07E:271</td>
<td>Advanced Reading Clinic Techniques</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Instructional procedures for children and early adolescents with severe learning problems in reading; causes of reading disorders; educational prognosis for severely disabled readers. Corequisite: 07E:272.</td>
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<td>07E:272</td>
<td>Advanced Reading Clinic Practicum</td>
<td>2-3 s.h.</td>
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<td></td>
<td>Practice in selecting and using instructional procedures that address the needs and interests of struggling literacy learners, with emphasis on teaching to students' strengths; how to fit clinical teaching techniques into an overall literacy instructional program. Corequisite: 07E:271.</td>
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<tr>
<td>07E:273</td>
<td>Reading Recovery I</td>
<td>2-3 s.h.</td>
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<tr>
<td>07E:274</td>
<td>Reading Recovery II</td>
<td>2-3 s.h.</td>
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<td>Training for teachers; tutoring of first-grade children; effective moment-by-moment instructional decision making.</td>
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<tr>
<td>07E:275</td>
<td>Reading Recovery Assessment Training</td>
<td>2-3 s.h.</td>
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<td>How to administer and analyze Marie Clay's Observation Survey; includes administration of the assessment to at least two first-grade children.</td>
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<tr>
<td>07E:277</td>
<td>Seminar: Social Studies Education</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education. Same as 07S:277.</td>
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<tr>
<td>07E:293</td>
<td>Individual Instruction</td>
<td>arr.</td>
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<td>Prerequisite: consent of instructor.</td>
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<tr>
<td>07E:300</td>
<td>Design and Organization of Curriculum</td>
<td>3 s.h.</td>
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<td>Major issues, modern selection, sequential arrangement, organization of content; relationship of time allotments to implementation; utilization of instructional equipment; appraisal procedures; staff participation in curriculum development.</td>
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<tr>
<td>07E:304</td>
<td>Schooling in the United States</td>
<td>3 s.h.</td>
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<td></td>
<td>Governance, finance, and policy structures that have influenced teaching and learning in public schools.</td>
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</tbody>
</table>
07E:308 Seminar: Research and Current Issues
For a specific curricular area: review of the literature, critical analysis of reported research, study of current issues and problems (see ISIS for specific areas offered); topics vary. Repeatable. Prerequisite: consent of instructor. Same as 07S:308.

07E:335 Seminar: Research in Mathematics Education
Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. Repeatable. Prerequisite: Ph.D. standing or consent of instructor. Same as 07S:335.

07E:340 Advanced Topics in Teaching and Learning
Topics vary. Same as 07S:340, 07U:340.

07E:341 Infusing a Global Perspective into the Curriculum
Rationales, conceptualizations, and themes in global perspectives in education, implications for curriculum change; elements of perspective consciousness, cultural universals, cultural diversity, cross-cultural awareness, global systems, global history, global issues; application and evaluation of ideas within fields of study and varied teaching situations. Same as 07S:341, 07U:341.

07E:350 Seminar: Science Education
Discussion of completed faculty and doctoral candidates' research, national issues, program features. Same as 07S:350.

07E:355 Research in Science Education
Independent research in science education. Prerequisite: consent of instructor.

07E:365 Reading Clinic: Supervision
Supervised experience in guiding and improving teacher performance in clinical practicums. Prerequisite: consent of instructor.

07E:370 Introduction to Qualitative Methods in Literacy Research
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as 07S:370, 08P:300.

07E:371 Critical Discourse Analysis in Educational Research
Critical discourse analysis (CDA) as theory and method; social and power relations, identities, and knowledge through written, visual, and spoken texts in social settings, such as schools, families, communities; theoretical and methodological traditions of CDA in educational research; critical approaches to analyzing spoken, written, and visual texts. Same as 07S:371.

07E:372 Advanced Methods of Literacy Research: Qualitative Data Analysis and Reporting
Advanced course in traditional and contemporary qualitative data analysis methods and varied forms of reporting to understand, critique, and conduct research about literacy learning and teaching. Same as 07S:372.

07E:385 Practicum in College Teaching
Prerequisite: consent of instructor.

07E:391 Research Project
Individual research projects in a specific curricular area; for advanced students. Repeatable. Prerequisite: consent of instructor.

07E:392 Field Service Project
Individual field service project in a specific curricular area; for advanced students. Repeatable. Prerequisite: consent of instructor.

07E:393 M.A. Thesis
Prerequisite: consent of instructor.

07E:406 Research in the Arts and Humanities
Individual research under supervision; applicable to thesis preparation, doctoral prospectus development. Repeatable. Same as 01E:406, 07S:406.

07E:415 Ph.D. Seminar in Language, Literacy, and Culture
Historical, recent research and theory in literacy education; topics vary. Repeatable. Prerequisite: consent of instructor. Same as 07S:415, 08P:425.

07E:451 Advanced Qualitative Data Analysis
Varied approaches to qualitative data analysis and philosophical foundations; analysis and interpretation of qualitative data; writing qualitative research findings. Prerequisite: 07B:373 or 07C:338 or 07E:370 or 07P:331 or 07S:370. Same as 07S:451.

07E:493 Ph.D. Thesis
Prerequisite: consent of instructor.

Secondary Education

07S:050 Opportunities in Education
Introduction for underrepresented students to the teaching profession and its widely varied opportunities; faculty, students, recipients of awards in education; tours of Iowa City schools; reflection on and personal integration of class learning experiences, consideration of future plans. Same as 07E:050, 07U:050.

07S:090 Introduction and Practicum: Art
Experience observing and assisting art teachers and students in elementary or secondary schools; four to six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.

07S:095 Introduction and Practicum: Mathematics
Experience designing and teaching lessons that have varying instructional intent and that use multiple instructional strategies; study and practice methods of managing the classroom learning environment; approximately 50 hours in cooperating schools, on-campus meetings. Prerequisite: admission to TEP.

07S:096 Introduction and Practicum: Music
Experience observing and assisting music teachers and students in elementary or secondary schools; six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.

07S:100 Foundations of Education
Overview of American education, preschool through secondary; aims, history, philosophy of education; professional ethics, legal responsibilities; school curriculum, organization, finance, school law, political and social issues. Prerequisite: admission to TEP. Same as 07E:100.

07S:102 Technology in the Classroom
Same as 07E:102.

07S:105 Methods of Art Education in Secondary Schools
Art education theory and methods at secondary levels; art curriculum, unit, and lesson planning; evaluation, motivation, instructional materials; observational techniques.

07S:106 Foreign Language Education Practicum I
Skill development for teaching languages in the early grades; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07E:106.

07S:107 Foreign Language Education Practicum II
Practice in lesson design, classroom management techniques, evaluation skills during work with inservice foreign language teachers. Corequisite: 07S:117. Same as 07E:107.

07S:110 Teaching K-12 Second Language Learners
Second language learning and teaching in the multicultural classroom; influence of school setting, societal context. Prerequisite: admission to TEP. Same as 07E:110.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>07S:111</td>
<td>Introduction and Practicum: Secondary Social Studies</td>
<td>2-3 s.h.</td>
<td>Experience observing and assisting social studies teachers and students in secondary schools; four to six hours per week in the school plus on-campus class meetings. Prerequisite: admission to TEP.</td>
</tr>
<tr>
<td>07S:112</td>
<td>Introduction to Museology</td>
<td>3 s.h.</td>
<td>Overview of museum history, function, philosophy, collection and curatorial practices, governance and funding issues, exhibition evaluation, audience studies; American cultural institutions. GE: Humanities. Same as 024:102, 097:115, 113:103.</td>
</tr>
<tr>
<td>07S:113</td>
<td>Methods: Secondary School Journalism</td>
<td>3 s.h.</td>
<td>Methods and materials for teaching high school journalism; publication policies, staff organization, production schedules, technology, the Internet, and techniques for advising student publications; experience in simulated teaching situations. Offered fall semesters. Same as 019:101.</td>
</tr>
<tr>
<td>07S:114</td>
<td>Introduction and Practicum: Secondary English</td>
<td>3 s.h.</td>
<td>Experience observing and assisting English or speech teachers and students in secondary schools; 12 hours per week in the school plus on-campus class meetings.</td>
</tr>
<tr>
<td>07S:115</td>
<td>Methods: Secondary English</td>
<td>3 s.h.</td>
<td>Organizational techniques, methods, materials for teaching high school English; experience in simulated teaching situations during laboratory sessions, integrated with lectures and discussions. Prerequisite: 07S:114. Same as 08P:190.</td>
</tr>
<tr>
<td>07S:116</td>
<td>Learning to Teach Second Languages I</td>
<td>3 s.h.</td>
<td>Approaches, methods, and techniques of teaching the modalities of listening, speaking, reading, and writing in a second language. Corequisite: 07E:106 or 07E:118 or 07S:106 or 07S:118.</td>
</tr>
<tr>
<td>07S:117</td>
<td>Learning to Teach Second Languages II</td>
<td>3 s.h.</td>
<td>Curriculum design, classroom management, student evaluation, technology, using context to teach culture in second languages. Prerequisite: 07E:110 or 07S:110. Corequisite: 07E:107 or 07E:119 or 07S:107 or 07S:119.</td>
</tr>
<tr>
<td>07S:118</td>
<td>ESL Practicum I</td>
<td>3 s.h.</td>
<td>Skill development for teaching English as a second language; curriculum design, test creation, microteaching with inservice teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:116. Same as 07E:118.</td>
</tr>
<tr>
<td>07S:119</td>
<td>ESL Practicum II</td>
<td>3 s.h.</td>
<td>Practice in lesson design, classroom management techniques, evaluation skills during work with inservice English as a second language teachers. Prerequisite: 07E:110 or 07S:110. Corequisite: 07S:117. Same as 07E:119.</td>
</tr>
<tr>
<td>07S:121</td>
<td>Environmental Science for High Ability Students</td>
<td>1 s.h.</td>
<td>Environmental health research; principles of toxicology, process of environmental health risk assessment; experience collecting, organizing, and analyzing information.</td>
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<tr>
<td>07S:122</td>
<td>Math Programming for High Ability Students</td>
<td>1 s.h.</td>
<td>Unique challenges and opportunities confronted by teachers of high-ability students; theory and practice, development of program outlines for implementation. Same as 07P:122.</td>
</tr>
<tr>
<td>07S:124</td>
<td>Differentiating Projects with Technology</td>
<td>1 s.h.</td>
<td>Use of digital tools to enrich student presentations; PowerPoint slide shows, presentations uploaded to World Wide Web, interactive multimedia presentations via HyperStudio. Same as 07E:124.</td>
</tr>
<tr>
<td>07S:125</td>
<td>Differentiated Instruction for the Gifted</td>
<td>1 s.h.</td>
<td>Program options for K-12 gifted students; student abilities and needs linked with various curriculums; case studies, school materials. Same as 07E:125.</td>
</tr>
<tr>
<td>07S:126</td>
<td>Reading for High-Ability Students</td>
<td>1 s.h.</td>
<td>Purposes and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07E:126, 07U:126.</td>
</tr>
</tbody>
</table>
07S:128 Differentiating through Advanced Technology
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07E:128, 07U:128.

07S:129 Learning and Leadership for Gifted and Talented Students
Same as 07E:129, 07U:129.

07S:130 Workshop for Secondary School Journalism/Communication Teachers
Workshops on journalism/mass media curriculum, audio/video production, photojournalism, publication design, journalistic writing techniques, advising student publications. Same as 019:102.

07S:132 Middle School Curriculum and Methods
Junior high and middle school development compared; characteristics of exemplary programs, disciplinary and interdisciplinary trends; variety of teaching methods (group and individual); hands-on activities. Prerequisite: admission to TEP. Same as 07E:132.

07S:134 Methods: Middle School Mathematics
Subject matter content, teaching and assessment techniques for grades 5-9 math; how students learn mathematics; mathematics curricular planning for all students. Prerequisite: 07S:095 or consent of instructor. Same as 07E:173.

07S:135 Methods: High School Mathematics
Subject matter content, teaching and assessment techniques for grades 9-12 math; how students learn mathematics; mathematics curricular planning for all students. Prerequisite: 07S:095 or consent of instructor.

07S:136 Home/School/Community Partnerships

07S:140 Band Methods and Materials
High school and elementary school music methods required for teaching certificate; for instrumental music education majors. Prerequisites: 07E:102 or 07S:102, 07S:190, and 07S:096. Same as 025:164.

07S:143 Instrumental Techniques
Repeatable. Same as 025:105.

07S:144 Psychology of Music
Cognition of music, affective response, aesthetic response, musical ability.

07S:145 Instrumental Conducting
Advanced skills for instrumental conducting, score analysis, rehearsal techniques, literature selection. Prerequisite: 025:107. Same as 025:108.

07S:147 Choral Methods
Organization, implementation of effective choral music programs for all ages. Prerequisites: 07E:102 or 07S:102, 07S:190, 07S:096, and 025:107. Same as 025:109.

07S:148 Choral Conducting and Literature
Advanced skills appropriate to choral conducting, analysis, literature selection studied and implemented to develop a secure approach to choral art; students preparing to teach in the elementary or secondary schools must register under 07S:148. Prerequisites: 07S:147 and 025:107. Same as 025:110.

07S:149 Introduction to Music Research
Preparation for conducting research on music behavior.

07S:150 String Methods and Materials
Methods for teaching bands in schools. Offered fall semesters. Prerequisites: (for 07S:150) 07E:102 or 07S:102, 07S:190, and 07S:096. Same as 025:112.

07S:151 Science Teaching and Practice with Early Learners
Introduction to students, schools, the purpose of schooling children in science, learning theories, science curricula, contemporary science education issues, effective science teaching.

07S:152 Methods of Teaching Science 3 s.h.
Developing, writing, and orally defending a robust research-based framework for teaching science that includes student goals, student actions, content, materials, activities, teaching behaviors and strategies, contemporary learning theories, self-evaluation. Prerequisite: 07S:151.

07S:153 Instructional Issues in Teaching Science 3 s.h.
Articulating, experiencing, practicing a research-based framework for teaching science in the real world of students, schools, teaching. Prerequisite: 07S:152. Corequisite: 07S:179.

07S:155 Approaches to Teaching Writing 3 s.h.
Theories, practices, strategies, and history of writing and teaching writing. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 08N:141.

07S:170 Methods: Secondary Social Studies 3 s.h.
Analysis of the teaching-learning process; organization of social studies content for teaching purposes; evaluation of learning procedures and new strategies; practicum work includes microteaching, computer-assisted modules, lesson plan development, writing test items.

07S:171 Secondary Classroom Management 2 s.h.
Characteristics of the classroom environment and their implications for organization and management; concepts and principles teachers can use when thinking about managerial tasks in the classroom; for prospective middle and secondary school teachers. Prerequisite: admission to TEP.

07S:172 Thinking Skills 1 s.h.
Factors involved in teaching thinking skills as a total concept; the relationship of critical and creative thinking; review of published programs.

07S:173 Programming/Curriculum for High Ability Students 1 s.h.
Programming and curriculum for K-12 students identified as gifted or highly able; in-class differentiations, special projects for pull-out programs, facilitating research projects, mentoring in advanced programming.

07S:175 Linguistic Diversity in the Classroom 3 s.h.
Topics related to linguistic diversity in the classroom grades 1-12; optimal teaching techniques for positive academic outcomes of linguistically diverse students. Same as 07E:175.

07S:178 Workshop in Teaching Communication and Forensics arr.
Methods, materials, progression, evaluation in teaching and supervising students in courses and class activities; opportunities for observation, demonstration, practice in teaching theater, discussion and debate, individual speech, dramatic and forensic events. Prerequisite: g.p.a. of at least 2.60. Same as 036:105.

Supervised teaching experience in a single subject; secondary school setting.

07S:180 Issues in Foreign Language Education 3 s.h.
Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available to foreign language professionals for disseminating research. Same as 164:170.

07S:181 ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Prerequisites: able to perform basic computer functions and use a World Wide Web browser. Same as 07C:181, 07E:181, 07P:181, 07U:181, 07X:181.

07S:182 Language and Learning 2-3 s.h.
How language reflects and constructs learners' identities and cultures; readings related to oral and written language, native and second language development, linguistic diversity; discussion of the relationship of language theory to schools of language instruction. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as 07E:182, 08P:182.

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<td>07S:183</td>
<td>Second Language Classroom Learning</td>
<td>3 s.h.</td>
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<td>Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 039:177, 07E:183, 164:171.</td>
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<tr>
<td>07S:184</td>
<td>Reading in a Second Language</td>
<td>3 s.h.</td>
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<td></td>
<td>Current theory, research, practice in second language reading field; role of textual features and the reader in reading comprehension. Same as 164:172.</td>
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<tr>
<td>07S:186</td>
<td>Curriculum Foundations</td>
<td>2-3 s.h.</td>
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<td></td>
<td>Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07E:186, 164:173.</td>
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<tr>
<td>07S:187</td>
<td>Seminar: Curriculum and Student Teaching</td>
<td>1-3 s.h.</td>
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<td></td>
<td>Discussions, role-playing, group and individual reports, analysis of critical incidents, classroom management, videotapes of student classroom performance pertinent to participants' student teaching experiences. Corequisite: student teaching.</td>
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<tr>
<td>07S:188</td>
<td>Practicum in Teaching and Curriculum Development in Gifted Education</td>
<td>1-6 s.h.</td>
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<td></td>
<td>Experience in developing course materials for classes offered through the Belin-Blank Center for Gifted Education. Same as 07C:188, 07E:188, 07U:188.</td>
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<tr>
<td>07S:189</td>
<td>Elementary School Special Subject Area Student Teaching</td>
<td>arr.</td>
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<td></td>
<td>Supervised teaching experience in a single subject in grades 1-6.</td>
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<tr>
<td>07S:190</td>
<td>Orientation to Secondary Education</td>
<td>0-1 s.h.</td>
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<td></td>
<td>Overview, including options for student teaching, classroom observation, lesson planning, classroom management, performance indicators, INTASC standards, blood borne pathogens, professional ethics.</td>
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<tr>
<td>07S:191</td>
<td>Observation and Laboratory Practice in the Secondary School</td>
<td>arr.</td>
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<td></td>
<td>Student teaching experience in performing the duties of regular classroom teachers under supervision of experienced personnel in secondary schools. Prerequisite: consent of instructor.</td>
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<tr>
<td>07S:192</td>
<td>Observation and Laboratory Practice in the Secondary School</td>
<td>arr.</td>
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<td></td>
<td>Continuation of 07S:191. Prerequisite: consent of instructor.</td>
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<tr>
<td>07S:193</td>
<td>Reading and Teaching Adolescent Literature</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Reading and evaluation of literature suitable for junior and senior high school students. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. Same as 08P:198.</td>
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<tr>
<td>07S:194</td>
<td>Methods: Secondary Reading</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Methods and materials used in teaching developmental reading in all junior and senior high school content areas. Prerequisite: 07S:114.</td>
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<tr>
<td>07S:195</td>
<td>Teaching Reading in Secondary Content Areas</td>
<td>1 s.h.</td>
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<td></td>
<td>Integration of reading strategies into secondary content areas for teacher candidates in secondary education.</td>
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<tr>
<td>07S:196</td>
<td>Topics in Teaching and Learning</td>
<td>arr.</td>
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<td></td>
<td>Repeatable. Prerequisite: consent of instructor. Same as 07E:196, 07U:196.</td>
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<tr>
<td>07S:197</td>
<td>Principles of Course Design for Second Language Instruction</td>
<td>3 s.h.</td>
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</table>
Contemporary views of second language curriculum design; guidelines necessary for the creation of prototypical curriculum units to be transposed into classroom-ready forms; for individuals interested in foreign language materials development. Same as 164:174.

07S:199 Independent Study

07S:200 Fundamentals of Second Language Assessment
How to write language tests; discussion of fundamental issues in development of new tests or selection of existing tests. Same as 164:270.

07S:201 Seminar: Current Topics in Music Education
Major areas of professional and research interest. Repeatable.

07S:202 Second Language Program Management
Preparation for supervising, administering foreign language programs at all levels; for precollegiate language teachers and graduate students. Same as 164:271.

07S:203 Second Language Planning in Education
Sociology and politics of national policies involving language, internationally; development of a research-based policy perspective on language issues in the country in which the student intends to teach.

07S:204 Literature for Children II
Current theory, research, and practice in reading and responding to children's literature; genre and topic vary. Same as 07E:204, 08P:204.

07S:206 Foundations of Music Education Curricula
Curriculum development, instructional materials, analysis of current teaching methods and techniques in school music programs; historical foundations of music education.

07S:207 Reading in Non-Roman Scripts
Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first and second language contexts; instructional and literacy development issues. Prerequisite: 07E:171 or 07P:270 or 07S:184 or equivalent. Same as 164:226.

07S:208 Designing Materials for Second Language Instruction
Critical perspective on creating and using media for second language learning and teaching; research on materials design, development of media. Prerequisite: 07S:183. Same as 164:272.

07S:209 Cultural Curriculum
Culture's role in foreign/second language teaching; definition, pedagogy, assessment, and materials that allow culture to be taught and learned. Same as 164:229.

07S:210 International Programs Summer Institute for Teachers
What Iowans need to know about the rest of the world; professional development workshop for teachers. One week. Same as 187:210.

07S:230 Workshop in School Mathematics
Recent developments in school mathematics teaching methods and curriculum relevant to a selected issue; one to three weeks of intensive examination, experience. Same as 07E:230.

07S:231 Technology in School Mathematics
Methods, materials, issues, pedagogy, assessment; use, evaluation of technology for mathematics teaching and learning; implications for organization, development of course content. Same as 07E:231.

07S:233 History and Foundations of Social Studies Education
Same as 07E:233.

07S:234 Foundations of Mathematics Education
2-3 s.h.
History of U.S. mathematics education; learning theory applied to teaching, learning mathematics; curriculum design; curriculum/standards and achievement patterns in the United States and other countries; equity; research literature. Same as 07E:234.

**07S:235 Current Issues in Mathematics Education** 1-3 s.h.
Recent curriculum developments, experimental programs, research relevant to classroom instruction, trends in education that may have a significant impact on mathematics programs. Same as 07E:235, 22M:195.

**07S:236 Teaching of Geometry** 2-3 s.h.
Current developments in teaching middle school/junior high and high school geometry; selection, organization of content; research on teaching and learning.

**07S:239 Teaching of Algebra** 2-3 s.h.
Current developments in curriculum and instructional methods in secondary school algebra; classroom use of the history of algebra, use of technologies, implications of current research for the algebra classroom.

**07S:241 Music Education Workshop** 1 s.h.
For inservice music teachers; topics vary. Same as 025:220.

**07S:244 Individual Projects in Music Education** 1-2 s.h.
Projects of special concern to individual music teachers in the public schools.

**07S:250 Assessment in Teaching and Research** 3 s.h.
Formative assessment as a tool for teaching and learning; principles and practices; evaluation of tools for assessing learning/achievement. Same as 07E:250.

**07S:251 Preparation of Curriculum Materials for School Science** 1-3 s.h.
Preparation of instructional materials for science courses. Repeatable. Same as 07E:251.

**07S:252 Designing Strategies for Science Instruction** 1-4 s.h.
Strategies and instructional models characterizing science instruction at the elementary, secondary, college levels. Offered spring semesters and summer sessions. Same as 07E:252.

**07S:256 Science Education: The Nature of Science** 3 s.h.
Relationship between scientists' work and current theoretical and practical portrayals of the nature of science in K-16 education. Same as 07E:256.

**07S:257 Learning in the Science Classroom** 2-3 s.h.
Assumptions about learning and about learning theories and their impact on pedagogical actions; how some concepts are planned and implemented. Same as 07E:257.

**07S:258 Writing in the Science Classroom** 3 s.h.
Literacy in the science classroom; theoretical and pedagogical perspectives; practical classroom activities that lead to effective writing and increased learning. Same as 07E:258.

**07S:259 Advanced Pedagogy** 3 s.h.
Theoretical and practical perspectives on pedagogy; how to assess practice, provide feedback, and build learning pathways for teachers. Same as 07E:259.

**07S:260 Restructuring Science Courses** 2-3 s.h.
Constructivist learning model applied to existing science courses; emphasis on student-centeredness. Repeatable. Same as 07E:260.

**07S:277 Seminar: Social Studies Education** arr.
Periodical literature, trends, curricular developments, research in various aspects of social studies education; for master's and doctoral candidates in social studies education. Same as 07E:277.

**07S:279 Advanced Research in Music Education** 3 s.h.
Design, performance, analysis, and reporting of music research.
07S:280 Workshop: Teacher Training for Advanced Placement Courses
Focus on a particular academic content area. Prerequisite: consent of instructor. 1-2 s.h.

07S:293 Individual Instruction
Prerequisite: consent of instructor. arr.

07S:306 Proposal Writing for Second Language Research
Procedures and techniques for writing research proposals at the doctoral level; written research proposal dealing with a question in second language teaching and learning. Prerequisite: consent of instructor. 3 s.h.

07S:308 Seminar: Research and Current Issues
For a specific curricular area: review of the literature, critical analysis of reported research, study of current issues and problems (see ISIS for specific areas offered); topics vary. Repeatable. Prerequisite: consent of instructor. Same as 07E:308. arr.

07S:315 M.A. Seminar: English Education
Significant developments in English education; primary and collateral readings. Prerequisite: consent of instructor. Same as 08P:405. arr.

07S:333 Seminar on Teacher Education
History, structure, and politics of teacher education; current practice and agendas for reform; new developments in teacher assessment. 3 s.h.

07S:335 Seminar: Research in Mathematics Education
Analysis of current research, research methodology, curriculum developments in mathematics education; topics vary. Repeatable. Prerequisite: Ph.D. standing or consent of instructor. Same as 07E:335. arr.

07S:340 Advanced Topics in Teaching and Learning
Topics vary. Same as 07E:340, 07U:340. arr.

07S:341 Infusing a Global Perspective into the Curriculum
Rationales, conceptualizations, and themes in global perspectives in education, implications for curriculum change; elements of perspective consciousness, cultural universals, cultural diversity, cross-cultural awareness, global systems, global history, global issues; application and evaluation of ideas within fields of study and varied teaching situations. Same as 07E:341, 07U:341. 3 s.h.

07S:350 Seminar: Science Education
Discussion of completed faculty and doctoral candidates' research, national issues, program features. Same as 07E:350. 0-2 s.h.

07S:355 Research in Science Education
2-3 s.h.

07S:367 Seminar: Current Issues in Art Education
Analysis of literature in art education and related disciplines. Repeatable. Same as 01E:367. 3-4 s.h.

07S:370 Introduction to Qualitative Methods in Literacy Research
Conceptual and practical exploration of selected research methods, including pilot data collection, analysis, and reporting. Repeatable. Same as 07E:370, 08P:300. 3 s.h.

07S:371 Critical Discourse Analysis in Educational Research
Critical discourse analysis (CDA) as theory and method; social and power relations, identities, and knowledge through written, visual, and spoken texts in social settings, such as schools, families, communities; theoretical and methodological traditions of CDA in educational research; critical approaches to analyzing spoken, written, and visual texts. Same as 07E:371. 3 s.h.

07S:372 Advanced Methods of Literacy Research: Qualitative Data Analysis and Reporting
Advanced course in traditional and contemporary qualitative data analysis methods and varied forms of reporting to understand, critique, and conduct research about literacy learning and teaching. Same as 07E:372. 3 s.h.
07S:384 Teaching and Learning in Higher Education  
Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07B:385, 07C:385, 07P:385, 650:385.

07S:385 Practicum in College Teaching  
Prerequisite: consent of instructor.

07S:393 M.A. Thesis  
Prerequisite: consent of instructor.

07S:406 Research in the Arts and Humanities  
Individual research under supervision; applicable to thesis preparation, doctoral prospectus development. Repeatable. Same as 01E:406, 07E:406.

07S:407 Research: Science Education  
Planning of individual research projects by M.S. and Ph.D. students.

07S:415 Ph.D. Seminar in Language, Literacy, and Culture  
Historical, recent research and theory in literacy education; topics vary. Repeatable. Prerequisite: consent of instructor. Same as 07E:415, 08P:425.

07S:451 Advanced Qualitative Data Analysis  
Varied approaches to qualitative data analysis and philosophical foundations; analysis and interpretation of qualitative data; writing qualitative research findings. Prerequisite: 07B:373 or 07C:338 or 07E:370 or 07P:331 or 07S:370. Same as 07E:451.

07S:493 Ph.D. Thesis  
Prerequisite: consent of instructor.

Special Education
Courses at the 100 level are open to students in education and related disciplines.

07U:050 Opportunities in Education  
Introduction for underrepresented students to the teaching profession and its widely varied opportunities; faculty, students, recipients of awards in education; tours of Iowa City schools; reflection on and personal integration of class learning experiences, consideration of future plans. Same as 07E:050, 07S:050.

07U:100 Foundations of Special Education  
Students with disabilities, gifted and talented; strategies for effective treatment, collaboration between regular and special education teachers; remediation of academic, behavioral, social problems. Prerequisite: admission to TEP.

07U:101 Methods: Child/Adolescents with LD and BD  
Strategies for effectively teaching elementary and secondary students with learning disabilities and behavioral disorders; emphasis is on practical, empirically verified techniques. Prerequisite: admission to TEP.

07U:110 Teaching Deaf and Hard of Hearing Students  
Issues in deaf education--management techniques, communication strategies, teaching strategies, instructional materials, hands-on activities, assessments, parent involvement; use of technology, ethnic and cultural diversity, classroom management, pre-reading techniques, literacy development, educational program options. Taught in American Sign Language. Pre- or corequisite: 158:014 or consent of instructor. Same as 158:110.

07U:115 Introduction: Strategist I (Elementary)  
Teaching students with mild disabilities in elementary resource placements; current trends and issues, basic and theoretical approaches, implications of federal and state statutes, multidisciplinary team approaches to providing appropriate educational programming; students complete a practicum with an elementary special education teacher. Prerequisite: admission to TEP. Corequisite: 07U:116.

07U:116 Methods: Strategist I (Elementary)  
3 s.h.
Methods and materials for students with mild to moderate disabilities in elementary resource placements; effective school collaboration; empirically validated strategies. Prerequisite: admission to TEP. Corequisite: 07U:115.

07U:121 Transition and Related Issues 3 s.h.
Curriculums, programs, and delivery systems that help persons with disabilities move from preschool to elementary, elementary to middle school, middle school to high school, and to postsecondary life; emphasis on ecological and task analysis, transition planning strategies, interagency collaboration, self-determination, access to resources and support services.

07U:122 Supervised Teaching: Elementary Strategist I 7 s.h.
Student teaching at the elementary level in a program for students with mild to moderate disabilities. Prerequisites: elementary education major and consent of instructor.

07U:126 Reading for High-Ability Students 1 s.h.
Purpose and methods of reading instruction, with focus on developmentally appropriate needs of high-ability readers; genres of literature, enriched and accelerated reading curricula, role of reading in social and emotional development of gifted students. Same as 07E:126, 07S:126.

07U:128 Differentiating through Advanced Technology 1 s.h.
Multimedia and web-based tools and utilities that enrich classroom learning and facilitate presentations made by technologically advanced students; production and editing of digital video, computer graphics, advanced web-publishing and communication techniques; skill development. Same as 07E:128, 07S:128.

07U:129 Learning and Leadership for Gifted and Talented Students 1 s.h.
Same as 07E:129, 07S:129.

07U:134 Parent-Teacher Communication 1-3 s.h.
Realities of working with parents; interpersonal skills; options for parent support services. Same as 07E:134, 07P:134.

07U:136 Home/School/Community Partnerships 3 s.h.
Issues related to collaboration among families, educators, community members in implementing school programs. Same as 07E:136, 07P:136, 07S:136.

07U:137 Introduction to Educating Gifted Students 3 s.h.
Fundamental issues such as curriculum, counseling, family issues, gender and minority issues. Same as 07C:137.

07U:138 Assessment of Learning Problems 3 s.h.
Effective use of varied formal and informal assessment techniques for students with learning and behavior problems; techniques that inform teaching decisions. Prerequisites: admission to TEP and Elementary Strategist I program.

07U:140 Characteristics of Disabilities 3 s.h.
Etiologies of mild/moderate disabilities; current educational trends; educational alternatives; importance of multidisciplinary team; psychological and social-emotional characteristics of individuals.

07U:148 Adaptations for Students with Multiple Disabilities 3 s.h.
Enhancing participation of persons with multiple disabilities; partial participation, individualized adaptations; positioning, handling techniques; integration of therapy with educational programs.

07U:181 ePortfolio Production 1-2 s.h.
Experience producing an ePortfolio and uploading it to the Internet; practical experience using digital tools, content and design related to ePortfolio production; experience using a web browser and access to the Internet and to a digital camera or scanner. Prerequisites: able to perform basic computer functions and use a World Wide Web browser. Same as 07C:181, 07E:181, 07P:181, 07S:181, 07X:181.

07U:187 Introduction to Assistive Technology 3 s.h.
How assistive technology can be used for attainment of goals in education or work. Same as 07C:187.
07U:188 Practicum in Teaching and Curriculum Development in Gifted Education 1-6 s.h.
Experience in developing course materials for classes offered through the Belin-Blank Center for Gifted Education. Same as 07C:188, 07E:188, 07S:188.

07U:190 Interdisciplinary Issues in Disabilities 1-3 s.h.
Critical issues related to interdisciplinary delivery of services to persons with developmental disabilities; observation and participation in staffing and consultation; opportunity for related community experiences.

07U:193 Independent Study arr.
Specialized study of topics not included in other courses. Prerequisite: consent of instructor.

07U:196 Topics in Teaching and Learning arr.
Repeatable. Prerequisite: consent of instructor. Same as 07E:196, 07S:196.

07U:201 Strategist II Methods--Elementary 3-4 s.h.
Methods and materials; strategies for assessing behavior, academic achievement, social skills; instructional resources; consultation with parents and peers; collaboration strategies; empirically validated strategies. Prerequisite: 07U:238.

07U:203 Strategist II Methods--Secondary 3-4 s.h.
Methods, materials, accommodations; practical skills for working in school/community settings; academic, affective, behavioral assessment; communication skills, management strategies, innovative program models, transition and career education planning; empirically validated strategies. Prerequisite: 07U:238.

07U:206 Practicum with Exceptional Persons arr.
Practicum experience with students with disabilities; experiences differ depending upon student's program of study. Prerequisite: consent of instructor.

07U:209 Seminar: Graduate Supervised Teaching 1 s.h.
For students enrolled in graduate student teaching practicum. Prerequisites: special education major and consent of instructor.

07U:230 Behavioral and Social Interventions 3 s.h.
Individual behavioral management, behavioral change strategies, and social interaction strategies, methods, and techniques for individuals with exceptional learning needs.

07U:231 Strategist I Methods 4 s.h.
Methods and strategies K-12 that include models for providing curricular and instructional methodologies used in educating mildly and moderately disabled, collaboration and consultation models; empirically validated strategies.

07U:236 Administration of Students with Special Needs 3 s.h.
Foundation for and skill practice in tasks performed by directors of special education and others administering to needs of special education students, and economically and socially deprived students; for prospective school administrative personnel. Same as 07B:236.

07U:238 Assessment of Learning Differences 3-4 s.h.
Same as 07P:238.

07U:250 Strategist I Student Teaching: K-6 arr.
Student teaching in a K-6 mild and moderate special education program.

07U:251 Strategist I Student Teaching: 7-12 arr.
Student teaching in a 7-12 mild and moderate special education program.

07U:252 Seminar: Behavioral Assessment and Evaluation 3 s.h.
Broadens skills of graduate students who engage in research with exceptional persons; research designs are usually taught in the Department of Psychological and Quantitative Foundations, but because of the nature of handicapping conditions and the low incidence of some handicaps, the single-subject design yields better research information. Same as 07P:352.

07U:253 Strategist II Student Teaching: K-6 arr.
Student teaching in K-6 learning disabilities or behavior disorders.

07U:254 Strategist II Student Teaching: 7-12
Student teaching in 7-12 learning disabilities or behavior disorders.

07U:275 Explicit Instruction
Empirically supported methods for teaching reading and mathematics K-12 to students with mild-moderate disabilities; assessment and curricular adaptations to individual needs.

07U:293 Individual Instruction
Permits specialized study of topics not included in other courses. Prerequisite: consent of instructor.

07U:340 Advanced Topics in Teaching and Learning
Topics vary. Same as 07E:340, 07S:340.

07U:341 Infusing a Global Perspective into the Curriculum
Rationales, conceptualizations, and themes in global perspectives in education, implications for curriculum change; elements of perspective consciousness, cultural universals, cultural diversity, cross-cultural awareness, global systems, global history, global issues; application and evaluation of ideas within fields of study and varied teaching situations. Same as 07E:341, 07S:341.

07U:343 Proseminar: Issues, Trends, and Research in Special Education
Conceptual and practical development of research across special education and related disciplines; empirical review of the literature; focus on professional writing skills. Prerequisite: consent of instructor.

07U:344 Proseminar: Issues, Trends, and Research in Special Education II
Recent research from a variety of special education areas reviewed by students; simulated comprehensive examinations. Prerequisite: 07U:343.

07U:345 Current Issues and Trends in Learning Disabilities
Readings and discussions of current issues and trends in learning disabilities (e.g., definition, prevalence, interventions, subtyping, assessment).

07U:348 Contemporary Research in Behavioral Disorders
In-depth analysis of current research in behavioral disorders; emphasis on evaluating its methodology and contribution to the field.

07U:353 Seminar: Single Subject Design Research
Reviews of single subject research, development of student proposals; focus on special education, applied research.

07U:355 Seminar: Transition
History, legal mandates, and practice of assisting persons with disabilities through the varied transitions of life.

07U:380 Practicum in College Teaching
Supervised experience in teaching basic special education courses; for doctoral students majoring in teacher training. Prerequisite: consent of instructor.

07U:392 Field Service Project in Special Education Internship
Part-time or full-time experience as an intern in school districts or area education agencies; develops skills in supervision and administration of special education. Prerequisite: consent of instructor.

07U:493 Ph.D. Thesis
Prerequisite: consent of instructor.
College of Engineering

Dean: P. Barry Butler
Associate dean, research and graduate studies: Gregory R. Carmichael
Associate dean, academic programs: Alec B. Scranton
Director, Center for Computer-Aided Design: Karim Abdel-Malek
Director, IIHR--Hydrosciences & Engineering: Larry Weber
Director, Iowa Spine Research Center: David Wilder
Degrees: B.S.E., M.S., Ph.D.
Web site: http://www.engineering.uiowa.edu

Engineering is defined by the Accreditation Board for Engineering and Technology as that profession in which knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use, economically, the materials and forces of nature for the benefit of mankind.

In short, engineering is the application of science and mathematics to solve problems for society.

The major aim of engineering is the creation of a new process, product, material, or system. This activity demands a high degree of creativity and problem solving ability coupled with a full understanding of engineering fundamentals, good judgment, and a practical sense of economics.

The College of Engineering prepares men and women for one or more of the many career opportunities in the engineering profession. Such opportunities include positions in design, production, development, research, management, and consulting. Engineers are employed in industrial organizations, governmental agencies, and private practice.

The College of Engineering’s mission is to develop, disseminate, transfer, and preserve technical knowledge that improves people’s lives. The college endeavors to:

- provide a well-rounded and superior engineering education that draws upon resources of a comprehensive research university to attract outstanding undergraduate and graduate students in selected engineering fields;
- conduct high-quality research in selected areas, enabling faculty members and students to keep pace with new developments and ensuring that the newest concepts are taught in its courses; and
- serve the needs of the University, industry, government, and the general populace by making its facilities and faculty expertise accessible.

College Organization

The College of Engineering has five departments and four research units. The Department of Biomedical Engineering, Department of Chemical and Biochemical Engineering, Department of Civil and Environmental Engineering, Department of Electrical and Computer Engineering, and Department of Mechanical and Industrial Engineering offer a total of six undergraduate programs and many graduate programs.

The research units are the Center for Bioinformatics and Computational Biology, the Center for Computer-Aided Design, the IIHR--Hydroscience & Engineering, and the Iowa Spine Research Center.

Undergraduate Programs

The College of Engineering offers the Bachelor of Science in Engineering (B.S.E.) in six major fields: biomedical engineering, chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. The undergraduate programs are designed to attract the best and brightest students and prepare them to be engineers who will succeed in a workplace filled with diverse people, attitudes, and ideas; to compete in the global marketplace; to work effectively in multidisciplinary teams; and to confidently understand, use, and develop modern technology.

All six B.S.E. programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Each has its own set of articulated educational objectives, and all are designed to ensure that graduates possess the following general attributes:

- ability to apply knowledge of mathematics, science, and engineering;
- ability to design and conduct experiments as well as to analyze and interpret data;
- ability to design a system, component, or process to meet desired needs;
- ability to function on multidisciplinary teams;
- ability to identify, formulate, and solve engineering problems;
- understanding of professional and ethical responsibility;
- ability to communicate effectively in oral, written, and graphical forms;
- broad education necessary to understand the impact of engineering solutions in a global and societal context;
- recognition of the need to engage in lifelong learning and the ability to do so;
- knowledge of contemporary issues; and
ability to use the techniques, skills, and modern engineering tools necessary for successful engineering practice. The University of Iowa B.S.E. programs distinguish the College of Engineering from other engineering colleges in the region. They draw on the University's recognized strengths to offer unique opportunities for students who wish to pursue a wide range of career options and an education that goes beyond technology.

Each program emphasizes a broad understanding of fundamental principles common to all engineering disciplines and provides students with the opportunity to specialize in a selected engineering discipline. All build on the University's research strengths. Program flexibility is provided by a curriculum in which each student develops engineering competency within a particular academic program and complements it with a tailored thematic option in support of chosen career objectives (e.g., engineering practice, project management, research and development).

Joint Degrees, Minors, Certificates

All of the college's B.S.E. programs may be combined with a second B.S.E., a Bachelor of Business Administration (B.B.A.) in the Tippie College of Business, or a bachelor's degree in the College of Liberal Arts and Sciences; see "Joint and Dual Degrees" later in this section, and contact the Student Development Center for details.

The College of Engineering and the University of Northern Iowa offer a dual degree program in which students earn a B.S. in applied physics from UNI and a B.S.E. from The University of Iowa. The college also offers a joint bachelor's/master's degree with the University's Urban and Regional Planning Program. See "Joint and Dual Degrees" later in this section.

B.S.E. students in each College of Engineering program may be eligible to enroll in a joint Bachelor of Science in Engineering/Master of Science program, which allows them to begin working on the master's degree while they are completing the B.S.E.; see "Joint B.S.E./M.S." in each College of Engineering department section of the Catalog.

Engineering students may earn a minor in the Tippie College of Business or in the College of Liberal Arts and Sciences; see "Minors" later in this section. Students also may pursue international business and technological entrepreneurship certificates; see "Certificates" later in this section.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering (B.S.E.) requires a minimum of 128 s.h. Students must be enrolled in the College of Engineering for at least the last 30 s.h. of work toward the degree, or 45 of the last 60 s.h., or a total of 90 s.h. They must have a g.p.a. of at least 2.00 on all college work used to satisfy degree requirements as well as on all work undertaken at The University of Iowa. All students must complete 22M:031 Engineering Mathematics I: Single Variable Calculus and 22M:032 Engineering Mathematics II: Multivariable Calculus, or their equivalents, with a grade of C-minus or higher in each course.

The faculty of each engineering program has established a curriculum--a set of required and elective courses that must be completed satisfactorily as part of the requirements for a B.S.E. in that program. The purpose of each program's curriculum is to prepare students for the practice of engineering in that program. General guidelines for establishing course requirements in each program are provided by the national accrediting body, the Accreditation Board for Engineering and Technology (ABET).

Each B.S.E. student also must satisfy the requirements of his or her specific program, as described in the Catalog's College of Engineering department sections: Biomedical Engineering, Chemical and Biochemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical and Industrial Engineering.

Curriculum Stems

The curriculum for each program is divided into four major curriculum stems: mathematics and basic sciences; engineering topics; elective focus area; and general education (humanities and social sciences). In addition to the four major stems, there are a few general background courses that fall outside of the stems. Students take these courses during the first year. They include 059:005 Engineering Problem Solving I and 059:006 Engineering Problem Solving II and 010:003 Accelerated Rhetoric, which is a first-year course in writing, speaking, and critical reading. Engineering Problem Solving I-II covers a breadth of topics from engineering as a profession to team design projects to engineering computations and computer programming.

All of the courses in the curriculum stems are integrated and sequenced to help students understand the interrelationships and importance of each stem.

MATHEMATICS AND BASIC SCIENCES

The mathematics and basic sciences stem provides the foundation upon which the engineering courses in each engineering program are based. This stem includes a minimum of five courses in mathematics and statistics and one each in chemistry and physics. The faculty of each engineering program has specified at least one additional chemistry or physics course and other additional mathematics or science courses beyond these minimum requirements to
provide a base appropriate for the program's major.

ENGINEERING TOPICS

The second curriculum stem, engineering topics (science and design), builds upon the math and science stem, providing a bridge from fundamental principles to applications and creative practice.

The engineering science courses use the underlying principles learned in the mathematics and basic science courses to understand and predict the behavior of idealized models of real components or systems encountered in engineering. These courses include fundamentals of statics, thermodynamics, and electrical circuits, as well as other engineering courses relevant to each major.

Engineering design is the process of devising a system, component, or process to meet desired needs. It is a decision-making process, often iterative, in which the basic sciences, mathematics, and engineering sciences are applied optimally to convert resources to meet a stated objective. The design process includes the establishment of objectives and criteria, synthesis, analysis, construction, testing, and evaluation. Essential to the design process is the inclusion of realistic constraints such as economic factors, safety, reliability, aesthetics, ethics, and social and environmental impact.

ELECTIVE FOCUS AREA

In each undergraduate program, a pool of semester hours is set aside to enable students to build strength in a technical focus area, pursue a formal minor, earn a multidisciplinary certificate, or pursue a tailored program of study. Each program has its own set of guidelines and constraints for the elective focus area. See "Elective Focus Area" below.

GENERAL EDUCATION COMPONENT

The fourth stem involves general education course work in the humanities and social sciences. This stem promotes understanding of and appreciation for society and culture. See "General Education Component" below.

First and Second Years

Approximately one-third of the course requirements in each engineering program are common to all engineering majors. These common course requirements constitute a core program. Students take most of the courses in the core program during the first and second years, along with a few program-specific courses. Hence, most students may postpone making a decision about which engineering major to pursue or may change their engineering major during their first three semesters with little or no loss of time or credit. The remaining curriculum for each engineering program is listed in the Catalog's College of Engineering department sections.

The first- and second-year courses common to all majors are listed below. Not all students complete all of these courses in the first three semesters. Students who do not follow this three-semester plan may encounter a delay in graduation because of scheduling problems for courses that require sequencing or that are offered only once a year.

First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011</td>
<td>Principles of Chemistry I (all majors)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>010:003</td>
<td>Accelerated Rhetoric (all majors)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus (all majors)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:005</td>
<td>Engineering Problem Solving I (all majors)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:090</td>
<td>First-Year Engineering Seminar (all majors)</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:012</td>
<td>Principles of Chemistry II (biomedical, chemical, and environmental majors)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>or</td>
<td>General education component 1 (civil, electrical, industrial, and mechanical majors)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22M:032</td>
<td>Engineering Mathematics II: Multivariable Calculus (all majors)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:033</td>
<td>Engineering Mathematics III: Matrix Algebra (all majors)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>029:081</td>
<td>Introductory Physics I (all majors)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:006</td>
<td>Engineering Problem Solving II (all majors)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Third Semester

22M:034 Engineering Mathematics IV: Differential Equations (all majors)  3 s.h.

029:082 Introductory Physics II (biomedical, civil, electrical, industrial, and mechanical majors)  3-4 s.h.

or

General education component 1 (optional, chemical and environmental majors)  3 s.h.

059:007 Engineering Fundamentals I: Statics  2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits  3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics  3 s.h.

Students who do not meet the eligibility requirement for 010:003 Accelerated Rhetoric (4 s.h.) are required to complete the two-course sequence 010:001 Rhetoric I and 010:002 Rhetoric II (total of 8 s.h.). Only 4 of the 8 s.h. may be applied toward the degree requirement for rhetoric.

Credit earned for courses below the level of the beginning courses specified in each engineering curriculum appears on a student's grade report and permanent record but is not used to satisfy any course requirements (including electives) for an engineering degree. Examples of courses in this category include 010:001 Rhetoric I, 22M:009 Elementary Functions, and 004:009 Supplemental Chemistry Lab.

General Education Component

Students choose 15 s.h. of general education (humanities and social science) courses from approved department and college areas; at least 3 s.h. must be from the pool of courses that the College of Engineering has designated as humanities courses, and at least 3 s.h. must be from the pool of courses that the college has designated as social science courses. To ensure depth, at least 6 s.h. of general education credit should be earned in intermediate (100-level) courses. At least one of the 100-level courses should be taken in the same department as a lower-level course already completed. Humanities and social science subject areas are defined by the College of Engineering; they may not correspond to the same general education area definitions used by the College of Liberal Arts and Sciences. Individual engineering programs may require further depth in one area and may include one or more of the general education requirements as part of a student's elective focus area.

Courses that are primarily mathematical or scientific in nature and those designed specifically to develop art, music, or physical education skills are not accepted as social science or humanities electives.

Credit may be earned by examination; see "Undergraduate Academic Rules and Procedures"/"Academic Standards"/"Credit by Examination" later in this section.

Humanities and social science course work transferred to The University of Iowa by students with A.A. degrees who enter the College of Engineering directly from two-year schools is evaluated on the same basis as similar course work transferred by other students entering the college without a B.A. or B.S.

Students who enter the College of Engineering with a B.A. or B.S. are considered to have satisfied the general education (humanities and social science) requirement.

Students who enroll in a combined degree program in the College of Engineering and the College of Liberal Arts and Sciences or the Tippie College of Business are considered to have satisfied the College of Engineering's general education requirement once they have completed all requirements for the liberal arts and sciences or business degree.

For details, see General Education Component (GEC) on the college's web site (http://www.engineering.uiowa.edu/%7Eengreg/human_and_soc_temp.php).

Elective Focus Area

Students choose elective focus area courses in two broad categories: traditional career goals and nontraditional career goals. Students choice of degree plan and courses may affect the number and type of employment opportunities available to them after graduation. Program advisors help students develop coherent, well-focused plans that fit their goals.

Students who pursue a well-defined plan may replace up to 21 s.h. of traditional technical electives with course work toward a minor or certificate. Or with an advisor's guidance, they may pursue a rigorous, well-focused, nontraditional program outside existing minor or certificate programs. Each College of Engineering undergraduate program is responsible for approving proposed plans of study, ensuring that the program's ABET accreditation criteria are met and
that students' choices are consistent with their career aspirations and with the college's educational mission.

To pursue one of these alternatives, a student must define and justify his or her career goal, obtain the program's approval for the detailed plan of study before taking the courses, and then complete the plan as it has been defined.

Guidelines for elective focus areas vary by program. For details, see Engineering Curriculum Guides and EFAs (http://www.engineering.uiowa.edu/~Engreg/curriculum_guides.php).

**Four-Year Graduation Plan**

College of Engineering students who choose to participate in the University's Four-Year Graduation Plan must be admitted on schedule and must complete specified courses during the first year in order to stay on the plan. They must work closely with their advisors to make sure they know what requirements must be met and the appropriate sequences in which to take courses.

The agreement holds both the student and the University responsible for clearly defined actions to ensure graduation within four years. Since changes in a student's interests may lead to changes in goals or majors, there is no penalty for withdrawing from the Four-Year Graduation Plan. For more information, contact the College of Engineering's Student Development Center.

**Honors Program**

The College of Engineering Honors Program provides special recognition for outstanding undergraduate students who demonstrate exceptional accomplishment through research, directed independent study, teaching internships, or other approved nondegree enrichment activities. Engineering students who wish to graduate with honors must maintain a University of Iowa g.p.a. of at least 3.33, complete an honors project with a faculty member, and participate in a college-wide honors seminar with faculty members and other honors students. Successful completion of the honors program requirements leads to a B.S.E. with honors, which is recorded on the student's University academic record.

First-year and sophomore students with a University of Iowa g.p.a. of at least 3.33 are automatically admitted to the University of Iowa Honors Program, which provides access to all of the services offered through the University's Honors Center. Engineering students are encouraged to participate in honors activities. Engineering students are the second largest collegiate group in the University Honors Program.

For more information, contact the College of Engineering associate dean for academic programs.

**Minors**

Students graduating from the College of Engineering may earn a minor in the Tippie College of Business or a minor or minors in any degree-granting department or approved program in the College of Liberal Arts and Sciences. A minor in another college may be earned by satisfying requirements established by the college offering the minor. A notation of the minor is entered on the student's permanent record.

College of Engineering programs generally allow use of a non-engineering minor to satisfy their elective focus area requirements. Students who pursue this option must work closely with program advisors to ensure compatibility with their engineering career aspirations.

Students must inform the Office of the Registrar of their fulfillment of minor requirements when they apply for a degree. This assures that the minor designation is included on their transcript. See "Undergraduate Academic Rules and Procedures"/"Application for Degree" later in this section.

**Minor in Business Administration**

The Tippie College of Business offers a minor that is open to undergraduate students in other colleges, including the College of Engineering. The minor in business administration requires 37 s.h., including at least 12 s.h. taken in the Tippie College of Business. Students must maintain a g.p.a. of at least 2.00 in the minor overall and in all courses in the minor taken at The University of Iowa. Course work in the minor may not be taken pass/nonpass.

Engineering students who wish to earn the minor in business administration must complete the following courses.

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06A:001</td>
<td>Introduction to Financial Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06A:002</td>
<td>Managerial Accounting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:001</td>
<td>Principles of Microeconomics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>06E:002</td>
<td>Principles of Macroeconomics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>06F:100</td>
<td>Introductory Financial Management (engineering</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>students may substitute 056:054)</td>
<td></td>
</tr>
<tr>
<td>06J:047</td>
<td>Introduction to Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06J:048</td>
<td>Introduction to Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06K:070</td>
<td>Computer Analysis (engineering students may</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>substitute 059:006)</td>
<td></td>
</tr>
</tbody>
</table>
For a list of approved substitutions and additional details about the minor, see Business Minor on the Tippie College of Business web site.

In order to have the minor listed on their transcripts, students must add the minor to their Application for Degree.

Minors in Liberal Arts and Sciences Disciplines

Engineering students who wish to earn a minor offered by the College of Liberal Arts and Sciences must complete a minimum of 15 s.h. in the minor, including at least 12 s.h. in advanced courses taken at The University of Iowa and approved by the school, department, or program offering the minor. Students should confer with the academic unit offering the minor to identify acceptable courses. Students must have a g.p.a. of at least 2.00 in courses taken for the minor. Courses in the minor may not be taken pass/nonpass. See Minors offered by the College of Liberal Arts and Sciences (http://www.clas.uiowa.edu/departments/) for details.

Certificates

University of Iowa undergraduate students may earn certificates in a variety of disciplines, offered by several colleges. The Certificate in International Business and the Certificate in Technological Entrepreneurship are of special interest for engineering students.

Certificate in International Business

The Tippie College of Business and the College of Liberal Arts and Sciences offer the Certificate in International Business. The program is designed for University of Iowa undergraduates interested in broadening their understanding of the global economy and their awareness of the political, historical, and social environment in which international business operates.

Certificate students study international business and economics, international relations and institutions, a foreign language, and the contemporary art, literature, culture, and/or politics of the related geographical area. The certificate's range of courses permits students to tailor areas of specialization that suit their individual interests and complement their majors.

The certificate requires 29 s.h.; a minimum of 20 s.h. must be completed at The University of Iowa or in approved study abroad programs. Guided Independent Study is accepted toward the certificate. Students must maintain a g.p.a. of at least 2.00 on all certificate course work. Certificate courses may not be taken pass/nonpass, nor may a single course be counted toward more than one certificate requirement.

Interested students must declare their intention to pursue the certificate with the international business certificate advisor in the Tippie College of business; contact the Tippie Undergraduate Program Office for details.

For a detailed description of certificate requirements, see International Business in the Catalog.

Certificate in Technological Entrepreneurship

The College of Engineering and the Tippie College of Business offer a joint program leading to the Certificate in Technological Entrepreneurship. The program entails study of the entrepreneurial process as it relates to technology.

The certificate program is designed not only for students who intend to start and/or operate their own business but for any student interested in gaining a better understanding of the entrepreneurial process. The program's range of electives permits students to tailor areas of specialization to their individual interests.

Interested students must declare their intention to pursue the certificate with the College of Engineering technological entrepreneurship program faculty representative. To receive the certificate, students must be granted a degree in engineering; maintain a g.p.a. of at least 2.00 on all certificate course work; and take at least 12 s.h. of certificate course work at The University of Iowa or in approved study-abroad courses. Completion of the program results in the notation "Certificate in Technological Entrepreneurship" on the student's transcript.

For details, see the Certificate in Technological Entrepreneurship page on the college's web site (http://www.engineering.uiowa.edu/about/tech-certificate.php). For application information, contact the College of Engineering Office of the Dean.

Cooperative Education and Internship Program

The Cooperative Education and Internship Program offers students the opportunity to explore engineering careers and develop engineering skills through periods of professional practice. Supervised professional engineering-related
experiences in business, industry, education, or government expose students to the challenges and opportunities of the day-to-day life of an engineer. Students with co-op and/or internship experience are sought by employers and usually receive higher starting salaries upon graduation. A portion of registered co-op and/or internship experience before graduation can be credited toward the experience requirements for professional licensure in Iowa and some other states.

Qualified students may choose to alternate periods of on-campus study with full-time work experience, or they may elect to work half-time while taking at least 6 s.h. of classes. The co-op experience can cover one to three semesters, a series of summer placements, or a single summer. Students may apply to the program following their first year. Academic record and class status are considered in acceptance decisions. Interested students and employers or organizations must register on Employment Expo and contact the College of Engineering director of professional development. For details, see Engineering Professional Development (http://www.engineering.uiowa.edu/epd/).

**Second B.S.E. Degree**

Current College of Engineering students and recent graduates may earn a second Bachelor of Science in Engineering. The second degree must include all courses required by the second engineering degree program, including the senior-level design course sequence and any specific social science elective requirements. Elective focus area courses selected for the second B.S.E. must be of a variety and level that permit students to meet at least the minimal level of competence usually expected of graduates of that program.

Students must file an academic study plan, which must be approved by the faculty of the second degree program, submitted to the Student Development Center, and placed in the student's permanent file before the student may begin course work in the second B.S.E. The study plan should include a list of the courses to be taken in the second program along with a list of the courses already completed and yet to be completed for the first engineering degree program. Any changes in the plan must be approved by the student's faculty advisor in the second program and by the department chair of that program (the college petition form may be used for this purpose), submitted to the Student Development Center, and placed in the student's permanent file.

**Joint and Dual Degrees**

**Joint B.B.A./B.S.E.**

The College of Engineering and the Tippie College of Business offer a joint degree program in which students earn two University of Iowa bachelor's degrees: a Bachelor of Business Administration (B.B.A.) from the Tippie College of Business and a Bachelor of Science in Engineering (B.S.E.) from the College of Engineering.

All students in the joint program must complete all requirements for both degrees, including all General Education requirements. They must enroll in appropriate mathematics and engineering courses early in their course of study in order to complete the program in a timely way. Because courses in natural sciences, mathematics, humanities, and social sciences count toward the B.B.A. and the B.S.E., students may count a single course toward both degrees.

B.B.A./B.S.E. students usually meet the degree requirements of both colleges in about five years; time required depends on the student's choice of major study areas.

The second-grade option is not available to all students in joint degree programs. Students should consult with their advisors before pursuing a second-grade option.

Students are assigned two advisors, one in the Tippie College of Business Undergraduate Program Office and the other in their College of Engineering major department.

To enter the joint degree program, students must have approval from both colleges and must be admitted to both colleges. Interested students should contact the College of Engineering Student Development Center.

For information about the B.B.A., including requirements for the degree, see Bachelor of Business Administration (Tippie College of Business) in the Catalog.

**Joint B.S.E./Liberal Arts and Sciences Degree**

Students may earn two University of Iowa baccalaureate degrees in a joint program in the College of Engineering and the College of Liberal Arts and Sciences. Successful candidates are awarded a B.S.E. (Bachelor of Science in Engineering) by the College of Engineering and a B.A. (Bachelor of Arts), B.S. (Bachelor of Science), B.F.A. (Bachelor of Fine Arts), or B.M. (Bachelor of Music) by the College of Liberal Arts and Sciences.

Students in joint degree programs must complete all requirements for both degrees, including the College of Liberal Arts and Sciences General Education Program and the College of Engineering general education curriculum stem.

Students in the joint program usually are able to meet the degree requirements of both colleges in about five academic years. The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the joint degree program are assigned two faculty advisors, one in their major
department in the College of Engineering and the other in their major department in the College of Liberal Arts and Sciences.

To enter the joint degree program, students must be admitted to both the College of Engineering and the College of Liberal Arts and Sciences and must have College of Engineering approval to enter the joint degree program. Joint degree program applicants must meet the high school course or unit requirements for admission to each of the two colleges.

It is crucial that students enroll in the proper mathematics and engineering courses early in their course of study to expedite the completion of the program. The specific engineering courses taken by each student vary according to engineering major. Since courses in natural sciences, mathematics, humanities, and social sciences are accepted for credit by both colleges, students may be able to count a particular course toward both degrees.

Contact the Student Development Center for information about specific requirements. To learn about liberal arts and sciences majors, visit College of Liberal Arts and Sciences in the Catalog and select majors from the college index.

**B.S./B.S.E. Dual Degree with Northern Iowa**

The 3+2 dual degree program leads to a B.S. in applied physics from the University of Northern Iowa (UNI) and a B.S.E. from The University of Iowa. It requires approximately three years of study at UNI followed by approximately two years of study at Iowa. There is no guarantee that students can complete the 3+2 degree in five years.

Students interested in the program are guaranteed admission to the University of Iowa portion of the program if they have a g.p.a. of at least 3.00 (B average) in all course work and in the chemistry, mathematics, and physics courses required by the University of Northern Iowa physics department.

During the first three years of the program, students complete at least 90 s.h. of course work at the University of Northern Iowa. They must successfully complete courses in each of the following areas: chemistry, mathematics through differential equations, physics to satisfy the applied physics major requirements, and courses to satisfy the General Education requirements. Credit for courses passed with a grade of C or higher is transferred to The University of Iowa as credit for equivalent courses there.

At The University of Iowa, students complete the B.S.E. requirements that were current at the time of their admission to the UI College of Engineering. Course work completed at The University of Iowa is transferred to the University of Northern Iowa and applied toward the requirements for that institution's B.S. in applied physics.

When transferring to Iowa from UNI, students must submit applications for admission, housing, and financial aid to The University of Iowa by the University's established deadlines.

**Joint B.S.E./M.S. or M.A. in Urban and Regional Planning**

The College of Engineering and the Urban and Regional Planning Program offer the joint Bachelor of Science in Engineering/Master of Arts or Master of Science in urban and regional planning. The joint degree requires a minimum of 152 s.h. The program is designed for students who wish to pursue a public or private sector career in planning, a field that encompasses the development of alternatives to improve the quality of life in cities and regions.

Graduates of the combined program are technically oriented professionals who have a clear understanding of policy development and implementation. They fill positions such as public works director, transportation engineer, and public utilities staff member. Their work involves a blend of civil and industrial engineering problems and policy analysis.

The joint program satisfies all requirements of both degrees. Its required 152 s.h. includes at least 45 s.h. of urban and regional planning graduate courses. Completion of the program takes five years--one fewer than would be required for consecutive completion of both programs.

Each student in the joint program has two advisors, one in engineering and one in urban and regional planning. Students enroll in the College of Engineering for their first four years in the program and in the Graduate College for their fifth year. Successful students receive a B.S.E. at the end of the fourth year and an M.A. or M.S. in planning at the end of the fifth year.

To join the combined degree program, students must first be admitted to the College of Engineering. During spring semester of their second year in engineering, they apply for admission to the joint program. Students admitted to the program apply for admission to the Graduate College at the end of their fourth year. Applicants must have completed all requirements for a B.S.E., have an undergraduate g.p.a. of at least 3.00, and earn a score on the Graduate Record Exam (GRE) General Test judged satisfactory by the urban and regional planning admissions committee.

While enrolled in the College of Engineering, students must maintain the overall grade-point average required by their engineering program.

Students also must maintain a g.p.a. of at least 3.00 in planning courses in the joint program. If they do not, they may be placed on academic probation, and if they fail to satisfy the conditions of probation, they are dismissed from the joint program. Dismissal from the joint program does not affect a student's standing in the College of Engineering.
Students in the joint program must maintain a cumulative g.p.a. of at least 3.00 in order to graduate with an M.A. or M.S. in planning.

Curriculum

Students in the joint program follow the standard B.S.E. curriculum for their College of Engineering program during the first and second year. Urban and regional planning courses (prefix 102) are added in the third and fourth years. Students earn 15 s.h. of their required B.S.E. elective focus area credit in courses that also meet the requirements of the M.A. or M.S. in planning.

During the summer after the fourth year, most students in the joint program complete an approved internship.

The fifth year usually includes the remaining urban and regional planning core courses and electives. Students take the M.S. or M.A. comprehensive examination during spring of the fifth year.

A typical study plan calls for completion of the following planning courses during the third and fourth years (15 s.h. of credit is applied to requirements of both the B.S.E. elective focus area and the planning courses).

Third year, fall semester:
102:202 Land Use Planning: Law and Practice 4 s.h.
102:205 Economics for Policy Analysis 3 s.h.

Third year, spring semester:
102:201 Analytic Methods in Planning II 2 s.h.

Fourth year, fall semester:
102:203 History and Theories of Planning 3 s.h.

Fourth year, spring semester:
Electives 3 s.h.

During the fifth year and the preceding summer session, students take the remaining 30 s.h. of planning courses, as follows. This completes the 45 s.h. of planning course work required for the M.S. or M.A.

Summer before fifth year:
102:335 Internship 2 s.h.

Fifth year, fall semester:
102:208 Program Seminar in Planning Practice 1 s.h.
102:209 Field Problems in Planning I 1 s.h.
Electives 12 s.h.

Fifth year, spring semester:
102:210 Field Problems in Planning II 3 s.h.
Electives 11 s.h.

See Urban and Regional Planning (Graduate College) in the Catalog for course descriptions and information about the University’s Urban and Regional Planning Program.

Admission to the B.S.E.

Applicants for admission to the College of Engineering as first-year students for academic year 2008-09 must have successfully completed at least four years of English/language arts; four years of mathematics, which must include at least two years of algebra, one year of geometry, and one year of higher mathematics (trigonometry, analysis, calculus); two years of a single foreign language; three years of natural science, which must include at least one year of chemistry and at least one year of physics; and at least two years of social studies. A high school computer programming course is recommended but not required.
Applicants are guaranteed admission to the College of Engineering if they have no high school unit deficiencies, an ACT composite score of 25 or higher, an ACT math score of 25 or higher, and a Regent Admission Index score of at least 265 (see http://www2.state.ia.us/regents/rai). Students who do not meet these requirements, or who attend a high school that does not rank its students, are encouraged to send recommendations from math and science teachers and a personal statement, which will be considered in an individual review by the College of Engineering.

Students who are admitted through the individual review process may be required to make up deficiencies by taking a lower-level course in their area of deficiency before enrolling in the first required course in that area. For example, students who have high math grades and standardized test scores, but who are deficient by one unit in mathematics, may be required to complete a course such as 22M:009 Elementary Functions before enrolling in the first engineering calculus course.

Incoming first-year and transfer students who do not meet the foreign language requirement may be admitted on conditional status for a maximum of four semesters in order to complete two semesters of an introductory college-level foreign language.

Students who are unsure whether to pursue a degree in engineering or a degree in liberal arts and sciences are strongly encouraged to begin in engineering if they meet the admission requirements.

For more information about admission to the College of Engineering, see http://www.uiowa.edu/admissions/undergrad/requirements/fy-eng.html on the University's Office of Admissions web site.

Transfer Applicants

Transfer applicants must have completed the same high school unit requirements as entering first-year students and must submit an official high school transcript as well as a transcript of college work undertaken at other institutions. To transfer to the College of Engineering, students must have demonstrated success in math, science, and engineering courses, ideally earning all As and Bs with no grade lower than a C in these foundation subjects. Transfer students must have completed calculus I and the equivalent of either 004:011 Principles of Chemistry I or 029:081 Introductory Physics I (the first semester of chemistry designed for majors, or the first semester of calculus-based physics). Overall grade-point average also is considered in transfer applications.

For more information about transfer admission to the College of Engineering, see http://www.uiowa.edu/admissions/undergrad/requirements/xfer-eng.htm on the University's Office of Admissions web site.

Academic Rules and Procedures

Academic Advising

Undeclared engineering students are advised by the staff members in the Student Development Center. Engineering students who have declared an academic program are advised by faculty advisors assigned to that program. Students may request a change of advisor when it is deemed appropriate. All students are required to have a conference with their advisors before registering for classes each semester.

Application for Degree

Students who wish to be considered for graduation must file an Application for Degree with the Office of the Registrar before the deadline date during the session in which the degree is to be conferred.

Students who do not graduate on the date indicated in the Application for Degree must file another application for the next applicable session. Students do not need to be registered to apply for a degree.

See Application for Degree (http://www.registrar.uiowa.edu/graduation/degreeapp.aspx) on the University's Office of the Registrar web site.

Academic Recognition

Graduation with Honors

Graduation with honors recognizes high academic achievement based on both grades and exceptional accomplishment. To be eligible for graduation with honors, students must be recommended by their major department and approved by a selected honors committee and the director of the honors program, and they must complete honors requirements. See "Honors Program" under Bachelor of Science in Engineering.

Graduation with Distinction

Graduation with distinction recognizes high academic achievement based on grades. The college awards degrees
"with highest distinction" to students in the highest 2 percent of their graduating class, "with high distinction" to students in the next-highest 3 percent, and "with distinction" to students in the next-highest 5 percent. Ranking is based on students' grade-point average for all college-level study taken up to their final registration.

To be eligible to be considered for graduation with distinction, students must complete their final 60 s.h. of study in residence at the college and must have completed at least 45 s.h. in the college before their final registration. Students in the combined engineering/liberal arts and sciences program are eligible to graduate with distinction regardless of the college in which they complete their residency requirement.

Dean's List

Students in the undergraduate Tippie College of Business, Colleges of Engineering, Liberal Arts and Sciences, and Nursing, and undergraduate programs in the Carver College of Medicine who achieve a grade-point average of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work (including Guided Independent Study courses) during a semester (or summer session) and who have no hours of I (incomplete) or O (no grade reported) for that enrollment are recognized by inclusion on the Dean's List for that semester (or session).

President's List

University of Iowa undergraduate students who achieve a grade-point average of 4.00 on 12 s.h. or more of University of Iowa graded course work (including Guided Independent Study Courses) and who have no hours of I (incomplete) or O (no grade reported) for two consecutive semesters (including summer session) are recognized by inclusion on the President's List.

Academic Standards

Maximum Schedule

Course schedules of more than 18 s.h. for a semester, 9 s.h. for a summer session, or 3 s.h. for a winter session require approval of the advising staff in the college's Student Development Center. Permission to Register for Additional Hours forms are available on the college's web site (http://www.engineering.uiowa.edu/%7Eengreg/student_records.php).

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit they have earned toward the Bachelor of Science in Engineering.

First-year: 0-29 s.h. earned toward the B.S.E.

Sophomore: 30-59 s.h. earned toward the B.S.E.

Junior: 60-89 s.h. earned toward the B.S.E.

Senior: 90 s.h. or more earned toward the B.S.E.

Grading System

The college uses a letter grading system. Plus and minus designate gradations of performance between letter grades. Numerical equivalents of letter grades are as follows.

Grade/Grade Points

A+ (4.33)
A (superior) (4.00)
A- (3.67)
B+ (3.33)
B (above average) (3.00)
B- (2.67)
C+ (2.33)
C (average) (2.00)
C- (1.67)
C minus/1.67
D plus/1.33
D (below average)/1.00
D minus/0.67
F (failing)/0

This grading system is used for all students in both undergraduate and graduate engineering courses. Grades of D-minus are passing grades; that is, courses completed with grades of D-minus or higher count toward collegiate requirements, with the exception of 22M:031 Engineering Mathematics I: Single Variable Calculus and 22M:032 Engineering Mathematics II: Multivariable Calculus, which have a minimum grade requirement of C-minus or higher. Grades of A-plus have a value of 4.33 in calculating grade-point averages, but averages displayed in University records are truncated so that they do not exceed 4.00.

**Academic Probation and Dismissal**

Students who do not achieve or surpass the following University of Iowa cumulative and semester minimum grade-point averages are placed on academic probation.

- First-year (0-29 s.h. earned toward B.S.E.), 1.80
- Sophomore (30-59 s.h. earned toward B.S.E.), 1.90
- Junior (60-89 s.h. earned toward B.S.E.), 1.95
- Senior (90 or more s.h. earned toward B.S.E.), 2.00

Students on academic probation are restored to good standing when they successfully complete an additional 9 s.h. toward an engineering degree, either in one semester or cumulatively, and their University of Iowa cumulative and semester grade-point averages equal or exceed those designated above.

The college reviews academic records for all students at the end of the fall and spring semesters. There is no review at the end of the summer session. Students are placed on probation, dismissed for unsatisfactory progress (with or without previous probationary status), or restored to good standing only at the end of the fall and spring semesters. Students on academic probation are not permitted to continue their enrollment without written expectations for their future performance.

Students who do not make satisfactory progress may be dismissed from the college without an intervening probationary period. Students who are dismissed from the college for unsatisfactory academic progress due to circumstances beyond their control, such as a death in their immediate family or extended personal illness, may appeal for a revocation of the dismissal. A student dismissed in January must submit a written appeal by the second day of spring semester classes. A student dismissed in May must submit the written appeal by June 15.

Students dismissed from the college for poor scholarship may appeal to re-enroll after an interval of at least one calendar year. A written appeal for reinstatement must be submitted to the Appeals Committee at the Student Development Center. Appeals must be submitted before June 15 for reinstatement in a fall semester or before December 1 for reinstatement in a spring semester.

For details, see Academic Standards (http://www.engineering.uiowa.edu/current-students/academic-standards.php) and Appeal Procedures (http://www.engineering.uiowa.edu/current-students/appeal-procedures.php).

**Dropping and Adding Courses**

Courses may be added with permission of the advisor and the instructor during the first two weeks of the semester or first one-and-one-half weeks of the summer session.

Courses may be dropped with permission of the advisor and the instructor at any time during the first 10 weeks of the semester. Only under compelling circumstances may courses be dropped after the 10th week, in which case special approval must be granted by the advisor, the course instructor, and the dean's office. Under no circumstance are students permitted to drop after the beginning of the scheduled final examination period.

**Limits on Withdrawing from Courses**

Undergraduates receive the mark of W for any course dropped after the second week of the semester or the first one-and-one-half weeks of the summer session. Students may not drop the same course with a mark of W more than twice. Special courses that may be repeated are exempt from this rule.

Students admitted to degree programs in the College of Engineering are limited to a total of five Ws while enrolled in
the College of Engineering. First-year students entering the University directly from high school with no prior full-time college experience are permitted to exclude Ws received during their first two sessions of enrollment.

Students who have a legitimate reason for dropping a course (e.g., disabling illness, death of an immediate family member) and can document that reason are permitted to exclude that drop from the maximum, but the W is not removed from the record. Requests for such exclusions are made in the Student Development Center.

**Withdrawal of Registration**

Students who withdraw their entire registration must consult the staff at the Student Development Center. A student on scholastic probation who withdraws registration at any time without good cause may not be permitted to enroll for the following semester without specific approval from the Student Development Center staff. Withdrawal cards for students enrolled in the college are signed by the associate dean for academic programs.

**Pass/Nonpass Option**

A maximum of two courses taken pass/nonpass (P/N) may be applied toward satisfaction of the general education (humanities and social sciences) requirement. P/N registration must be approved by the student's advisor and the instructor of the course and must be completed during the first 10 days of a semester or the first two weeks of a summer session. P/N registration may not be changed after the deadline for adding courses. The pass/nonpass option may not be used for courses taken to satisfy the rhetoric requirement. Guided Independent Study courses taken for humanities or social science credit may not be taken P/N.

Students enrolled in courses taught in the College of Engineering may choose to be graded pass/nonpass under the following conditions:

- the signatures of the advisor and instructor must be obtained on the proper form, and the completed form must be submitted to the registration center by the student within the time period established by University policy;
- the mark of P (pass) is awarded where the final course grade earned was C-minus or higher; the mark of N (nonpass) is given for grades of D-plus or below; marks of P and N are not used in computing the grade-point average, and the mark of N does not count as earned credit.

No course work taken in the College of Engineering on the pass/nonpass option may be used to satisfy requirements for an engineering degree.

**Second-Grade-Only Option**

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. The option may be applied to no more than three courses, and it may be applied only once to a particular course. Transfer students may apply the option on a prorated basis.

A course may not be repeated under the second-grade-only option once it has been used as a prerequisite for a more advanced course that the student has completed successfully.

To exercise the second-grade-only option, students register as usual for the course that is to be repeated, then complete a Second Grade Option form at the Student Development Center; Second Grade Option forms are available on the college's web site (http://www.engineering.uiowa.edu/%7Eengreg/student_records_items/forms/second_grade.php). The form must be completed during the session in which the course is repeated, within the first 12 weeks of the fall or spring semester or the first six weeks of the summer session. Students must follow this procedure or both grades will be counted in the University of Iowa grade-point average.

Under the second-grade-only option, the registrar marks the permanent record to show that a particular course has been repeated. Both grades remain on the permanent record, but only the second is used in calculating the grade-point average and semester hours earned. The course must be taken the second time under the same circumstances and with the same grade option as it was taken the first time.

The second-grade-only option cannot be used to remove a grade of incomplete, which must be removed in the usual manner. A student who holds a degree from The University of Iowa may not apply the second-grade-only option to a course taken before the degree was conferred.

**Satisfactory/Fail Courses**

The noncredit professional seminar courses required in each of the professional programs are offered only satisfactory/fail (S/F). No other engineering courses are offered on this basis. An F (fail) grade earned for such a class does not satisfy any portion of the professional seminar requirement.

**Incomplete and No Report Grades**
A mark of I (incomplete) that is not replaced by a final grade will automatically be converted to an F at the end of the next fall or spring semester (summer and winter sessions excluded), even if the student does not enroll after the session the incomplete was posted.

A mark of O (no grade reported) will remain on a student's permanent record until a valid grade is submitted.

Credit by Examination

Students who have acquired knowledge in subject areas from sources other than formal course registrations may be granted credit toward graduation by examination, under the following conditions and limitations.

No more than 32 s.h. of credit by examination may be applied toward B.S.E. degree requirements.

College-Level Examination Program (CLEP) credit may be counted toward the lower-level general education (humanities and social science) requirements. CLEP credit earned in natural science areas does not count toward the engineering degree. Credit also may be earned through Advanced Placement Exams. For details about CLEP and Advanced Placement Exam credit, visit the Office of Admissions web site (http://www.uiowa.edu/admissions/undergrad/majors/credit-by-exam.htm).

Engineering students may earn credit for equivalent experience or former course work in any of the required common core courses through successful completion of examinations prepared and graded by the core course committees. Students who fail a core course are not permitted to earn credit by examination for the failed course. Students who wish to earn credit for core courses by examination must obtain approval from the associate dean for academic programs.

With approval of the departmental faculty, credit in three or fewer courses (totaling no more than 6 s.h.) may be awarded upon successful completion of final examinations in program elective courses.

Foreign Language Incentive Program

The University's Foreign Language Incentive Program (FLIP) gives entering engineering students two options for earning college credit.

Option 1: Entering students who place into a fifth-semester language course and complete the course with a grade of B-minus or higher receive 4 s.h. of exam credit for the fourth-semester course. The credit is ungraded but may be counted toward the hours required for graduation. Incentive credit is not granted for college course work for which credit has been received.

Students are eligible for incentive credit only during their first and second registrations at The University of Iowa.

Option 2: Students may receive 2 s.h. of exam credit for earning a grade of B-minus or higher in a first-semester-level course in a foreign language different from the language used to satisfy the foreign language requirement. They may earn another 2 s.h. for completing the second-semester-level course in that language for a grade of B-minus or higher.

For details about FLIP for engineering students, visit the college's web site (http://www.engineering.uiowa.edu/%7Eengreg/flip_credit.php). For more information on eligibility and restrictions, consult the Student Development Center.

Credit from Other Colleges

Course requirements in engineering may be satisfied with credit earned in courses taken in other University of Iowa colleges or at other accredited colleges or universities. When students apply for admission to the College of Engineering, they must submit official transcripts from each college attended along with their application for admission. After the credit has been certified by the Office of Admissions as college-level work from an accredited institution and after admission has been granted, the credit is evaluated by the Student Development Center either before or during the student's first semester of enrollment in the college.

Satisfaction of engineering course requirements by transfer course work may be approved by the Student Development Center if, course-by-course, there is a match in the content and level of the transfer courses, and if the grades earned for such courses are C-minus or higher. Students who want to satisfy the engineering General Education Component (GEC) (social sciences and humanities) requirements or The University of Iowa rhetoric requirements by transfer work must follow the College of Engineering General Transfer Credit Guidelines.

Students planning to attend a two- or four-year institution before transferring to the College of Engineering should discuss the planned transfer with officials at both schools before embarking on a transfer program. The College of Engineering has recommended transfer course lists for most Iowa community colleges and some four-year colleges. Once students are enrolled in the College of Engineering, they must have prior approval for course work taken at other institutions.
For details about transfer credit for engineering students, including recommended transfer course lists and taking course work at other institutions, see http://www.engineering.uiowa.edu/~engreg/transfer.php.

By policy of the Board of Regents, State of Iowa, a student may apply a maximum of 64 s.h. of transfer credit earned at a two-year college toward the 128 s.h. required for the B.S.E. However, transfer credit from a two-year school in excess of 64 s.h. is used in computing grade-point average and may be used to satisfy course requirements, even though the semester hours cannot be counted toward the total required for graduation. A grade of C-minus or higher is required in order for transfer credit to be applied toward a degree requirement.

**Course Substitutions**

For students in the College of Engineering, the substitution of an alternate course for a required course requires the approval of a petition. Petition for Course Substitution forms are available on the college's web site (see http://engineering.uiowa.edu/~engreg/student_records.php) or at the Student Development Center. The form must be completed by the student and must be approved by the student's advisor and by the chair of the academic department in which the student is majoring.

If the petition involves a required engineering core course or a General Education Component (social sciences or humanities) course, then it also must be approved by the Student Development Center. Substitutions for required engineering core courses should be made infrequently and only under compelling circumstances. Substitutions of courses that are required by the student's program are governed by the faculty of that program; approval of these course substitutions is needed only from the faculty advisor and the department chair. All petitions must be forwarded to the Student Development Center for inclusion in the student's permanent file.

**Auditing Courses**

Students in the College of Engineering may register for a course for zero credit (audit) with the permission of the course instructor and the advisor. The mark of R is assigned to students registered for zero credit if attendance and performance in the course are satisfactory; if unsatisfactory, the mark of W is assigned. Courses completed with a mark of R do not meet any requirements nor do they carry any credit toward graduation. Auditing may not be used as a second-grade-only option.

To register for a course on an audit basis, students must obtain the instructor's authorizing signature and their advisor's signature and must register for 0 s.h. To change registration from audit to credit or from credit to audit, a drop-add form is used. These changes must be made during the first three weeks of a semester or the first one-and-one-half weeks of a summer session.

**Misconduct, Complaints**

**Student Academic Misconduct**

Policies regarding cases of cheating or plagiarism are outlined on the College of Engineering web site (http://www.engineering.uiowa.edu/current-students/academic-misconduct.php) and are included in Policies and Regulations Affecting Students, on the University's Division of Student Services web site (http://student-services.uiowa.edu/students/policies/index.php). In cases of cheating on an exam or quiz, the policy recommends that the instructor reduce the student's grade, including the assignment of F for the course. When a course grade has been reduced to an F, the student may not drop the course or use the second-grade-only option to eliminate the failing grade.

At the beginning of each semester, course instructors individually announce and explain their policies on acceptable levels of collaboration between students on graded work, which includes homework assignments, and lab or design projects. When a policy is violated, a zero is assigned for the total portion of the course grade allocated to the requirement in which the violation occurs. The instructor sends a written report of any disciplinary action to the office of the dean and the report is placed in the student's file. Students are notified by the office of the dean of any disciplinary action reported and are informed of appeal procedures.

**Student Complaints Concerning Faculty Actions**

In cases where complaints do not involve alleged student academic misconduct, students with complaints against engineering faculty members first should attempt to resolve the issue with the faculty member; see the college's web site (http://www.engineering.uiowa.edu/current-students/faculty-actions-complaints.php). Lacking a satisfactory outcome, the student should discuss the matter with the chair of the faculty member's department.

Students who are uncomfortable dealing directly with a faculty member or a department chair may seek assistance from the engineering faculty ombudsperson when attempting to resolve a complaint related to an engineering course. Students taking non-engineering courses should seek assistance from the University ombudsperson. However,
grievances generally can be satisfactorily resolved most expeditiously at the faculty or chair level. If students are not satisfied with the outcome of this procedure, they should discuss their complaints with the dean of engineering.

**Graduate Programs**

The College of Engineering offers the Master of Science and Doctor of Philosophy in biomedical engineering, chemical and biochemical engineering, civil and environmental engineering, electrical and computer engineering, industrial engineering, and mechanical engineering. For information about principal research and study areas, degree requirements, admission, and financial support for individual graduate programs, see the Catalog's College of Engineering department sections: Biomedical Engineering, Chemical and Biochemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical and Industrial Engineering.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Professional Licensure**

Licensure as a professional engineer is governed by the laws of each state. Most states' minimum requirements include graduation from an accredited engineering curriculum of at least four years, followed by at least four years of practical experience and successful completion of two major examinations.

The agency that controls and monitors the licensing procedure in Iowa is the Iowa Engineering and Land Surveying Examining Board. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given near the time of graduation. Following graduation and the successful completion of the engineering fundamentals exam, graduates receive an Engineer-in-Training (EIT) certificate. The final step in the procedure is to pass the principles and practice exam in a specialty area following a minimum of four years of approved professional experience. At this point, the graduate engineer becomes a licensed Professional Engineer.

**Student Organizations**

The College of Engineering student body is represented by the Engineering Student Council. The council plans and carries out activities involving the entire college, such as the student and faculty picnic and E-Week. The organization also acts on collegewide matters of general student interest.

Engineering students publish their own student journal, Hawkeye Engineer. The journal is staffed by students, with faculty members serving only in an advisory capacity.

The following engineering professional societies are represented by University of Iowa student chapters: American Institute of Chemical Engineers, American Society of Civil Engineers, American Society of Mechanical Engineers, Biomedical Engineering Student Society, Institute of Electrical and Electronics Engineers, Institute of Industrial Engineers, and National Society of Professional Engineers.

The following student organizations are multidisciplinary and may have members from any department: American Institute of Aeronautics and Astronautics is a professional organization affiliated with the field of Aerospace Engineering; Engineers for a Sustainable World and Engineers Without Borders are organizations working to reduce poverty and improve global sustainability; The Human Factors and Ergonomics Society is a student organization which strives to raise awareness of human factors issues throughout the academic and outside communities; The Society of Automotive Engineers is a professional and technical organization open to all engineering majors; A local chapter of Theta Tau, a national professional engineering fraternity, is active in service to the college and draws its membership from students throughout the college.

The University chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. The work of students who are outstanding in their respective fields are recognized by Alpha Eta Mu Beta, honorary biomedical engineering society; Omega Chi Epsilon, honorary chemical engineering society; Chi Epsilon, honorary civil engineering society; Eta Kappa Nu, honorary electrical engineering society; Alpha Pi Mu, honorary industrial engineering society; and Pi Tau Sigma, honorary mechanical engineering society.

Student organizations dedicated to providing support and assistance in the development of more equitable enrollments of minorities and women in the college: Multi-Ethnic Engineering Student Association is a comprehensive organization affiliated with the College of Engineering; The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers is a comprehensive organization affiliated with the College of Engineering; The National Society of Black Engineers is a national organization to increase the number of culturally responsible black engineers and scientists who excel academically, succeed professionally and positively impact the community; The Society of Hispanic Professional Engineers is a national organization dedicated to the advancement of Hispanic
people in the fields of Engineering, Math and Sciences; The Society of Women Engineers is a College of Engineering student chapter of the national organization.

For more information about Engineering student organizations, see the college's web site (http://www.engineering.uiowa.edu/current-students/student-organizations.php#engineering).

**Research Centers**

**Center for Bioinformatics and Computational Biology**

The Center for Bioinformatics and Computational Biology facilitates development of new areas of study and expanded research opportunities in informatics areas related to the basic biological sciences and applied medical research.

The field of bioinformatics and computational biology (BCB) involves creation of methods for applying advanced mathematics and computation to problems of biological and biomedical interest, for example, understanding of the human genome, evolution of plants and animals, and relationships between microorganisms and higher-order life-forms. BCB is characterized by a diverse confluence of traditional academic disciplines. Biology and computing are joined by applied mathematics, biochemistry, biomedical and computer engineering, physics, probability and statistics, and others.

The Center for Bioinformatics and Computational Biology sponsors a seminar series, varied symposiums, and a seed grant program. It is affiliated with the University's Carver Center for Comparative Genomics, Carver Family Center for Macular Degeneration, Coordinated Laboratory for Computational Genomics, DNA Facility, Holden Comprehensive Cancer Center, and Center for Gene Therapy of Cystic Fibrosis and Other Genetic Diseases.

**Center for Computer-Aided Design**

The Center for Computer-Aided Design is a College of Engineering research unit dedicated to the advancement and practical implementation of modeling and simulation research. The unit promotes multidisciplinary research, scholarship, and technology transfer with applications in design and optimization, kinematics and dynamics, human factors, and solid mechanics.

Among the technology applications currently under investigation at the center are meshfree methods for structural analysis and design sensitivity analysis, composite materials, probabilistic mechanics and reliability, reliability-based design optimization, topology optimization, multidisciplinary design optimization, advanced geometric modeling and CAD, human interaction with advanced technology and automation, human-computer interaction and virtual reality, computational modeling of human performance, mechanisms and robotics, and real-time dynamic simulation for haptic interfaces. CCAD research activities promote individual and multidisciplinary approaches to design and engineering analysis, engaging research participants from a variety of academic fields and interests.

Twelve faculty members currently are affiliated with CCAD, representing the Departments of Civil and Environmental Engineering, Mechanical and Industrial Engineering, and Mathematics (College of Liberal Arts and Sciences). Together, these faculty members supervise more than 50 graduate and undergraduate students. CCAD also employs 10 full-time professional staff members and three postdoctoral research scholars.

CCAD maintains a variety of high-performance computer systems. Its primary computing capability consists of a network of Hewlett-Packard HP C-, B-, and J-class workstations and servers and Silicon Graphics workstations. Most individual workstations incorporate high-performance graphics for general computing needs, including CAD/CAE, software development, virtual prototyping, and virtual environment development. More than 40 Windows NT workstations are connected to the HP/Silicon Graphics network, providing routine X windows access. A 16-processor HP Exemplar S-class supercomputer with 3 GB of main memory, more than 45 GB of local disk space, and two J6000 dual processor compute servers, each with 4 GB of memory, provide resources for extensive engineering analysis capabilities using a wide variety of industry-standard and locally developed software. A Network Appliance F520 file server with more than 200 GB of disk supports the storage needs of all center UNIX resources. Standard desktop, multimedia, and office productivity applications are hosted on a network of Dell and Micron personal computers running Windows 2000. Network-capable Hewlett-Packard LaserJet and Tektronix color printers support the center's printing needs, and there is a variety of CD creation, video, and video production equipment for archival, dissemination, visualization, and presentation of center research.

Connecting all of this is a switched network using 10/100BaseT Ethernet via HP 4000M network switches connected via Gigabit Ethernet to the College of Engineering backbone. Each switch has its own dedicated connection to the Network Appliance file server and uses a mesh of 100BaseT connections to provide 400Mbps full-duplex connectivity between each pair of switches.

The center supports a wide range of commercially available scientific and engineering packages. For structural analysis, the center uses ABAQUS, ANSYS, and MSC Nastran, as well as pioneering software in the area of meshless analysis, ADAMS and DADS for dynamic analysis, and Altair HyperWorks and MSC Patran for preprocessing, meshing, and visualization. It uses PTC's ProEngineer for CAD. Additional software tools include Mathematica, Matlab,
IMSL, Xmath, and DOT.

 Organizations supporting CCAD's research program include the National Science Foundation, the National Aeronautics and Space Administration (NASA), the U.S. Departments of Transportation and Defense, the Iowa Department of Transportation, the Minnesota Department of Transportation, and industry leaders such as Caterpillar, 3M, Allsteel Inc., LG Digital Appliances, Maytag Corporation, Honda, General Motors, Nissan, and Rockwell International.

IIHR—Hydroscience & Engineering

IIHR—Hydroscience & Engineering (formerly the Iowa Institute of Hydraulic Research) is one of the nation's premier and oldest fluids research and engineering laboratories. Its activities encompass the broad spectrum of fluid mechanics, engineering and environmental hydraulics, and hydrometeorology.

Basic and applied engineering research programs are carried out at IIHR in nine modern, well-equipped laboratories. IIHR conducts teaching and research programs in fluid mechanics (turbulent shear flows, vortex dynamics, ship hydrodynamics, biofluid dynamics, and computational fluid dynamics); environmental hydraulics (river hydraulics, computational hydraulics, hydraulic structures, bioremediation, water quality dynamics, air-water exchange processes, ice-related river hydraulics, winter highway maintenance, and ice modeling); water and air resources (hydrometeorology, hydroclimatology, hydrogeology, hydrology, remote sensing and water resources); and history of hydraulics and fluid mechanics.

IIHR maintains state-of-the-art research facilities, including a large low-turbulence wind tunnel, a vortex dynamics laboratory, a ship-model towing tank, extensive energy balance equipment, and radiometric and meteorological stations. It also has specialized equipment, such as a three-dimensional scanning elastic lidar, a differential absorption lidar, particle image velocimetry (PIV) and laser Doppler velocimetry (LDV) systems, and state-of-the-art computer resources.

IIHR has constructed a new research and education facility on the Mississippi River near Muscatine, Iowa. The Lucille A. Carver Mississippi Riverside Environmental Research Station provides opportunities for researchers and educators from around the world to study river processes in a multidisciplinary setting. The research station's state-of-the-art facilities support study of diverse facets of the Upper Mississippi River and promote a better understanding of river ecosystems and their response to natural events and human activities.

High-level involvement of graduate students is a hallmark of most IIHR projects. IIHR is heavily involved in fluids engineering for industry and in fundamental research programs, providing graduate students and postdoctoral trainees with unique opportunities for valuable research and engineering experience. Undergraduates also have opportunities to participate in IIHR projects.

Iowa Spine Research Center

The Iowa Spine Research Center (ISRC) assesses clinical effectiveness and outcome in diagnosing and treating various spinal diseases. It also provides guidance in spinal research and patient care. The center, a unique collaboration between the College of Engineering and the Carver College of Medicine, involves teams of investigators that include engineers, economists, surgeons, research scientists, nurses, therapists, and students.

Facilities and Resources

Seamans Center for the Engineering Arts and Sciences

The Seamans Center for the Engineering Arts and Sciences is home to the College of Engineering. Dedicated in 2001, the Seamans Center combines new construction with extensive renovation of the former Engineering Building to provide space for learning, teaching, research and collaboration that anticipates the needs of 21st-century engineering.

The center's Student Commons and John Deere Plaza Lobby provide welcoming space for students to work individually or together on homework and projects, with wireless computer connections. Additional work rooms and conference areas join the center's expanded classrooms and flexible research space in an environment designed to serve the needs of the college's students, faculty, and staff.

All five of the college's departments have headquarters in the building, and most faculty offices are located there.

Student Development Center

The professional staff of the Student Development Center administers student services for the College of Engineering, including admission, advising, tutoring, and student records and scholarship. It also provides professional development services such as co-ops/internships, study abroad, and résumé and interviewing skills.

Engineering Professional Development

Engineering Professional Development (EPD) develops and promotes experiential education and professional
opportunities for students in the College of Engineering. EPD programs and services include the Co-op and Internship Program, Study Abroad Programs, job shadowing, spring break programs, the fall Engineering Career Fair, and the spring Engineering Job and Internship Fair. EPD offers individual advising and class presentations on résumé preparation and interviewing skills as well as instruction on finding professional engineering positions and using electronic, print, and other resources in job searches. EPD also recruits employers and organizations interested in hiring engineering students and, in partnership with the Pomerantz Center, facilitates on-campus interviewing.

Ethnic Inclusion Effort for Iowa Engineering
The College of Engineering has taken on a holistic approach to improving ethnic inclusion among our engineering graduates and providing a model for other institutions interested in eliminating the disparity in ethnicity in engineering by developing the Ethnic Inclusion Effort for Iowa Engineering program.

Lichtenberger Engineering Library
The Lichtenberger Engineering Library is a center of college activity. It maintains a collection of more than 100,000 volumes and provides access to more than 1,000 current journal titles. The library offers internet access to a wide array of indexes and abstracts and houses a significant collection of standards. Study space is provided for library users.

Hanson Center for Technical Communication
The Hanson Center for Technical Communication (CTC) helps undergraduate engineering students develop and polish their written communication skills. The center's coordinator and assistant coordinator supervise a staff of professional writing consultants and peer consultants.

CTC writing consultants are professional instructors who work in teams to help engineering faculty members present and evaluate writing-intensive assignments. They also provide individual feedback and assessment of students' work throughout the writing process.

CTC peer consultants are engineering students who have strong writing skills. Peer consultants conduct one-on-one tutoring sessions at the center, helping their fellow students develop skills relating to organization, audience analysis, precise technical descriptions, and persuasive and logical narratives.

Computer Systems Support
Engineering Computer Systems Support (CSS) provides for curricular computing at the College of Engineering. A large network of high performance Hewlett Packard color graphics UNIX workstations and XP workstations, along with extensive commercial and public domain software, support the full range of engineering college classes. The college provides the same type of computer hardware and software that students will use when they graduate and begin working as engineers. CSS updates hardware and software regularly to maintain the best educational environment.

Engineering and other students who take engineering courses are provided with an engineering computing account, which they keep during their tenure at the college. This account provides students with electronic mail and access to the Internet. The college's computer labs provide students with more than 300 networked computers, and labs at the Seamans Center are open 24 hours per day. CSS provides support for student computing.

Engineering Design & Prototyping Center
The Engineering Design & Prototyping Center (EDPC) provides state-of-the-art technical resources to University and to private sector research and development groups for concept development, project design, full service machining, and rapid prototype modeling.

Engineering Electronics Shop
The Engineering Electronics Shop is a full-service electronics support facility for the College of Engineering. The shop provides design, construction, repair, calibration, and preventive maintenance services for both teaching and research laboratories. There also is an extensive electronics parts supply store and PC board facility for engineering students and researchers.

Course Numbering System
The title of each course offered by the College of Engineering is preceded by a three-digit prefix and a three-digit suffix separated by a colon.

The second digit of the prefix is 5, which identifies the course as one offered by the College of Engineering.

The third digit of the prefix identifies the College of Engineering program that offers the course as follows:

051: Biomedical engineering
052: Chemical and biochemical engineering
053: Civil and environmental engineering
055: Electrical and computer engineering
056: Industrial engineering
057: Engineering core (old curricula)
058: Mechanical engineering
059: Core engineering (new curricula)

The three-digit suffix of a course number identifies the level and type of course. Generally, suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduate students, and numbers 200 and above designate courses primarily for graduate students.

The courses offered by each department are listed in the department's section by discipline area, starting with the lowest-level course and proceeding to the highest-level course.

A brief description is included for each course. Prerequisite and corequisite courses listed in course descriptions are University of Iowa courses. Students who have not taken the University of Iowa prerequisite but who have earned credit in equivalent course work from another institution should consult the course instructor if they have questions concerning their preparation for the course. They must obtain the instructor's consent before registering for the course.

Engineering students may enroll in any course in the College of Engineering if they meet the course prerequisite and corequisite requirements. Undergraduates from other colleges may enroll in engineering courses only with consent of the College of Engineering director of admissions and outreach; contact the Student Development Center. Consent for enrollment in an engineering course is based on space available as well as on whether the students have the mathematics, science, and engineering background considered necessary to undertake the course work.

Core Program Courses

The college's individual undergraduate programs and course requirements for each engineering major are described in the Catalog's College of Engineering department sections.

Each undergraduate program builds upon a core program (see "Undergraduate Curriculum" earlier in this section). The following core program courses are offered by the college. Not all core courses are required for each engineering major.

Undergraduates from other colleges cannot register for core program courses without special permission from the college's director of admissions and outreach; contact the Student Development Center.

Engineering Core (Old Curricula)

057:000 Cooperative Education Training Assignment: Engineering 0 s.h.
For engineering majors participating in the Cooperative Education and Internship Program. Prerequisite: consent of college's internship and co-op director.

057:001 Engineering Honors Seminar 1 s.h.
Repeatable. Prerequisites: engineering honors and junior or higher standing.

057:002 Half-time Cooperative Education Training Assignment: Engineering 0 s.h.
Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.

057:010 Dynamics 3 s.h.
Vector calculus, Newton's laws, 3-D motion of particles and multiparticle systems, 2-D motion of rigid bodies applications. Prerequisites: 22M:031 and 059:007.

057:013 Introduction to Sustainability arr.
Issue of sustainability; interdisciplinary teaching techniques utilizing collaboratively designed curriculum; four major components—integration of experiences, social integration, integration of knowledge, and integration as a curriculum design.

057:015 Materials Science 3 s.h.
Concepts and examples of selection and applications of materials used by engineers; mechanical, electrical, and thermal properties that govern a material's suitability for particular applications; lectures supplemented by laboratory experiments. Prerequisite: 004:011. Corequisite: 22M:031.

**057:017 Computers in Engineering** 3 s.h.
Introduction to digital systems and engineering applications of microprocessor-based computers; C programming language; serial and parallel I/O; analog-to-digital and digital-to-analog conversion; system control using polling and interrupts; lab arranged. Prerequisites: 059:006 and sophomore standing.

**057:018 Principles of Electronic Instrumentation** 4 s.h.
Principles of analog signal amplification, signal conditioning, filtering; operational amplifier circuit analysis and design; principles of operation of diodes, bipolar transistors, field effect transistors; discrete transistor amplifier analysis and design; laboratory included. Prerequisites: 029:082 and 059:008.

**057:019 Mechanics of Deformable Bodies** 3 s.h.
Elementary theory of deformable bodies, stress, strain; axial, transverse, bending, torsion, combined and buckling loads; deflection of beam. Prerequisite: 059:007. Corequisite: 22M:034.

**057:020 Fluid Mechanics** 4 s.h.
Fluid properties; hydrostatics; transfer of mass, momentum, and energy in control-volume and differential forms; dimensional analysis and similitude; laminar and turbulent flow in conduits; flow past bluff bodies and airfoils; engineering applications; experimental laboratories, computer simulation projects. Prerequisites: 22M:034 and 057:010. Corequisite: 059:009.

**057:029 First-Year Seminar** arr.
Topics include solar energy, wind energy; biomass and alternative fuels; sustainable water resources management; perils of global warming; climate change; air pollution; human health; DNA, genomes and society; medical imaging, the fate of pharmaceuticals and personal care products in the environment.

**057:030 Introduction to Engineering Design** 3 s.h.
Problem-solving skills taught through a design-development process; use of solid-modeling computer design software to create, analyze, and communicate models of product solutions. Prerequisite: consent of UI Project Lead the Way director.

**057:031 Principles of Engineering** 3 s.h.
Introduction to engineering and engineering technology; exploration of varied technology systems and manufacturing processes to show how engineers and technicians use math, science, and technology to solve engineering problems and help people; concerns about social and political consequences of technological change. Prerequisite: consent of UI Project Lead the Way director.

**057:032 Digital Electronics** 3 s.h.
Applied logic, with focus on application of electronic circuits and devices; use of computer simulation software to design and test digital circuitry before circuits and devices are built. Prerequisite: consent of UI Project Lead the Way director.

**057:033 Computer Integrated Manufacturing** 3 s.h.
Builds on computer solid modeling skills developed in 057:030; application of robotics and automation principles; robotics in automated manufacturing, design analysis; students use CNC equipment to produce models of their 3-D designs. Prerequisite: consent of UI Project Lead the Way director.

**057:034 Civil Engineering and Architecture** 3 s.h.
Overview of civil engineering and architecture; interrelationship and dependence of each field on the other; roles of civil engineers and architects, project planning, site planning, building design, project documentation and presentation; students use state-of-the-art software to solve real-world problems and provide solutions for projects and activities. Prerequisite: consent of UI Project Lead the Way director.

**057:035 Aerospace Engineering** 3 s.h.
Experience applying scientific and engineering concepts to design materials and processes for aeronautics and flight; aerospace information systems, star sailing or astronautics rocketry, propulsion, physics of space science, space life sciences; habitat and crew systems with life support, biology of space science, principles of aeronautics, structures and materials, systems engineering. Prerequisite: consent of UI Project Lead the Way director.

057:036 Biotechnical Engineering
Experiences from the fields of biotechnology, bioengineering, biomedical engineering, and biomolecular engineering; biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, human interface, bioprocess engineering, forensics, bioethics. Prerequisite: consent of UI Project Lead the Way director.

057:039 Engineering Design and Development
Experience working in student teams to research, design, and construct a solution to an open-ended engineering problem, under a community mentor's guidance; application of design and engineering concepts. Prerequisite: consent of UI Project Lead the Way director.

057:131 Concepts of Physical Science and Principles of Engineering
Understanding the field of engineering and engineering technology; technology systems and manufacturing processes explored to learn how engineers and technicians use math, science, and technology to solve engineering problems and benefit people; concerns about social and political consequences of technological change.

057:136 Concepts of Physical Science with Biotechnical Engineering Applications
Experiences from biotechnology, bioengineering, biomedical engineering, and biomolecular engineering, and how to relate them to secondary students; biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, human interface, bioprocess engineering, forensics, bioethics.

057:186 Experiential Design I

057:187 Experiential Design II
Prerequisite: 057:186.

Core Engineering (New Curricula)

059:005 Engineering Problem Solving I
Development and demonstration of specific problem solving skills; directed project or case study involving actual engineering problems and their solutions.

059:006 Engineering Problem Solving II
Engineering problem solving using computers; introduction to digital computations, problem formulation using a procedural high-level language; structured, top-down program design methodology; debugging and testing; introduction to use of software libraries; examples from numerical analysis and contemporary applications in engineering. Corequisite: 22M:031.

059:007 Engineering Fundamentals I: Statics
Vector algebra, forces, couples, moments, resultants of force couple systems; friction, equilibrium analysis of particles and finite bodies, centroids; applications. Prerequisite: 22M:031. Corequisites: 22M:032 and 029:081.

059:008 Engineering Fundamentals II: Electrical Circuits
Kirchhoff's laws and network theorems; analysis of DC circuits; first order transient response; sinusoidal steady-state analysis; elementary principles of circuit design; laboratory experience with DC, AC, and transient circuits. Corequisite: 22M:034.

059:009 Engineering Fundamentals III: Thermodynamics
Basic elements of classical thermodynamics, including first and second laws, properties of pure materials, ideal gas law, reversibility and irreversibility, and Carnot cycle; control volume analysis of closed simple systems and open systems at steady state; engineering applications, including cycles; psychrometrics. Prerequisites: 004:011, 22M:032, and 029:081.
059:090 First-Year Engineering Seminar
Introduction to engineering student life; electronic resources; keys to and skills for success; coping with adversity; selecting a major; advising responsibilities; curriculum choices and career objectives; ethics; communication; internships and co-ops; job search skills. Prerequisite: first-semester standing.
Biomedical Engineering

Chair: Joseph Reinhardt
Adjunct professor: Richard McLay
Associate professors: Terry A. Braun, Edwin L. Dove, Nicole Grosland, Stephen K. Hunter, Michael A. Mackey, Vincent Magnotta, Jun Ni, Madhavan L. Raghavan, Todd Scheetz, Robert Tucker, David Wilder, Jinhu Xiong
Adjunct associate professors: Don Anderson, James Martin, Alan B. Moy, Douglas R. Pedersen, Joel Pickar, Merryn Tawhiai
Adjunct visiting associate professor: Jose G. Assouline
Assistant professors: Fiorenza Ianzini, Khalid Kader, William R. Lynch, Salem Rahamata, Aliasher Saleh, Kai Tan, Sarah Vigmastad, Yi Xing, Denice Zingman
Adjunct assistant professors: James W. Devocht, Jessica Goetz, Ram R. Gudavalli, Anneliese D. Heiner
Adjunct instructors: Thahir Almomani, Tom Barr, Hyunggun Kim, Ting Xia
Adjunct lecturers: Peter Poolman, Lisa Sranaton
Associate: Hans Johnson
Undergraduate degree: B.S.E. in Biomedical Engineering
Graduate degrees: M.S., Ph.D. in Biomedical Engineering
Web site: http://bme.engineering.uiowa.edu/

The past four decades have seen a tremendous growth of technological activity in biology and medicine. As engineers increasingly have become involved with projects in the life and health sciences, there has been greater need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession.

The Department of Biomedical Engineering fosters interdisciplinary activities across departments and colleges and maintains strong ties with the Carver College of Medicine. The department strives to provide a well-rounded and superior engineering education that attracts outstanding students at both the undergraduate and graduate levels; conduct high-quality research that enables faculty members and students to keep pace with and initiate new developments; and serve government, industry, and institutions worldwide by making the department's facilities and faculty expertise accessible.

Several engineering faculty members have joint appointments in the Carver College of Medicine. Both biomedical engineering undergraduates and graduate students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in biomedical engineering. The program provides a contemporary education in a multidisciplinary area. Its objective is to produce graduates who:

- have the ability to identify, formulate, and solve open-ended problems with medical relevance, including the design of devices, systems, and processes to improve human health;
- are able to pursue a wide range of career options, including those in industry, academia, and medicine; and
- are able to advance to leadership positions in their chosen field.

Students who complete the program may pursue career opportunities in biomedical industries, such as design and development of biomedical instrumentation, diagnostic aids, life-support systems, prosthetic and orthotic devices, and man-machine systems; or they may pursue traditional career opportunities in industry, such as those rooted in mechanical or electrical engineering disciplines. Other career options are available in government (Food and Drug Administration, Environmental Protection Agency, National Institutes of Health, Veterans Affairs). Some biomedical engineering graduates elect to continue formal education in engineering, medicine, or law.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The biomedical engineering major builds on the foundation provided by the College of Engineering core curriculum, preparing students for the challenges and opportunities associated with careers in the profession.

The program has been designed carefully to enable students to satisfy the entrance requirements of the Graduate College. Students whose choice of electives includes a three-course sequence in organic chemistry, an additional biology course, and a biochemistry course may satisfy entrance requirements of the Carver College of Medicine, the College of Dentistry, or the allied health sciences.

The B.S.E. curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005 Engineering Problem Solving I, 059:006 Engineering Problem Solving II, and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. For information on B.S.E. curriculum stems and common course requirements, see Bachelor of Science in Engineering in the College of Engineering section of the Catalog.
Students must select elective focus area courses according to guidelines established by the Department of Biomedical Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

**FIRST YEAR**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>004:011 Principles of Chemistry I</td>
</tr>
<tr>
<td></td>
<td>010:003 Accelerated Rhetoric (or 010:001-010:002)</td>
</tr>
<tr>
<td></td>
<td>22M:031 Engineering Mathematics I: Single Variable Calculus</td>
</tr>
<tr>
<td></td>
<td>059:005 Engineering Problem Solving I</td>
</tr>
<tr>
<td></td>
<td>059:090 First-Year Engineering Seminar</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>004:012 Principles of Chemistry II</td>
</tr>
<tr>
<td></td>
<td>22M:032 Engineering Mathematics II: Multivariable Calculus</td>
</tr>
<tr>
<td></td>
<td>22M:033 Engineering Mathematics III: Matrix Algebra</td>
</tr>
<tr>
<td></td>
<td>029:081 Introductory Physics I</td>
</tr>
<tr>
<td></td>
<td>051:090 First-Year Forum</td>
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<tr>
<td></td>
<td>059:006 Engineering Problem Solving II</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>002:010 Principles of Biology I</td>
</tr>
<tr>
<td></td>
<td>22M:034 Engineering Mathematics IV: Differential Equations</td>
</tr>
<tr>
<td></td>
<td>051:091 Professional Seminar: Biomedical Engineering</td>
</tr>
<tr>
<td></td>
<td>059:007 Engineering Fundamentals I: Statics</td>
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<tr>
<td></td>
<td>059:008 Engineering Fundamentals II: Electrical Circuits</td>
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<tr>
<td></td>
<td>059:009 Engineering Fundamentals III: Thermodynamics</td>
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<table>
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<tr>
<th>Second Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>027:130 Human Physiology</td>
</tr>
<tr>
<td></td>
<td>051:030 Cell Biology for Engineers</td>
</tr>
<tr>
<td></td>
<td>051:091 Professional Seminar: Biomedical Engineering</td>
</tr>
<tr>
<td></td>
<td>051:130 Cell Biology for Engineering Lab</td>
</tr>
<tr>
<td></td>
<td>057:017 Computers in Engineering</td>
</tr>
<tr>
<td></td>
<td>057:019 Mechanics of Deformable Bodies</td>
</tr>
<tr>
<td></td>
<td>General education component course</td>
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</tbody>
</table>

**THIRD YEAR**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
<td>029:082 Introductory Physics II</td>
</tr>
<tr>
<td></td>
<td>051:040 Biological Systems Analysis I</td>
</tr>
<tr>
<td></td>
<td>051:050 Biomechanics: Theory and Design</td>
</tr>
<tr>
<td></td>
<td>051:070 Biomaterials and Implant Design</td>
</tr>
<tr>
<td></td>
<td>051:091 Professional Seminar: Biomedical Engineering</td>
</tr>
<tr>
<td></td>
<td>General education component course</td>
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</tbody>
</table>
### Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>051:060</td>
<td>Data and Image Acquisition and Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>051:075</td>
<td>Cell-Material Interactions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>051:080</td>
<td>Data Acquisition Design Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>051:091</td>
<td>Professional Seminar: Biomedical Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>General education component courses</td>
<td>6 s.h.</td>
</tr>
</tbody>
</table>

### FOURTH YEAR

#### First Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>051:085</td>
<td>Biomedical Engineering Senior Design I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>051:092</td>
<td>Leadership and Resourcefulness</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td>Four elective focus area courses</td>
<td>12 s.h.</td>
</tr>
</tbody>
</table>

#### Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>051:086</td>
<td>Biomedical Engineering Senior Design II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>One general education component course</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Three elective focus area courses</td>
<td>9 s.h.</td>
</tr>
</tbody>
</table>

### Elective Focus Area

The biomedical engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see "Bachelor of Science in Engineering"/"Elective Focus Area" in the College of Engineering section of the Catalog. For a list of standard biomedical engineering elective focus area options and guidelines for tailored elective focus areas, contact the Department of Biomedical Engineering or visit its web site.

### Joint B.S.E./M.S.

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for biomedical engineering undergraduates who intend to earn an M.S. in biomedical engineering. B.S.E./M.S. students may take some graduate-level course work, attend the departmental graduate seminar, and work on a master's thesis or research project while still undergraduates. They may count a limited amount of course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.50, and must submit a letter of application to the chair of the Department of Biomedical Engineering stating the intended area of specialization and the name of the M.S. advisor.

### Graduate Programs

The department offers a Master of Science, with and without thesis, and a Doctor of Philosophy in biomedical engineering. The aim of graduate study at both levels is to educate students more deeply and broadly than is possible at the undergraduate level. The goal is to enable students to use contemporary methods at an advanced level during a professional career in engineering design, development, and research.

Each student's course of study is based on individual background and career objectives, and sound academic practice. Department faculty members have teaching and research expertise in areas related to cardiovascular and fluid biomechanics, musculoskeletal biomechanics, biomaterials and tissue engineering, bioinstrumentation, biosystems, biomedical imaging, biological signal analysis, bioinformatics and computational biology, and other allied fields.

An individual program for each student may be developed from courses offered by the biomedical engineering department and other departments, especially mechanical engineering, electrical engineering, physiology, mathematics, and biological sciences. M.S. students who want a more general program may combine emphases, while those who want some specialization in a particular field can achieve their goals through the combination of...
departmental courses and appropriate electives from other departments of the College of Engineering and the University.

Ph.D. programs may center on any one of the previously described areas through the choice of appropriate course work and research topic.

**Master of Science**

The Master of Science in biomedical engineering requires a minimum of 30 s.h. of graduate credit, with or without thesis. Students who choose the nonthesis program must earn at least 6 s.h. of 200-level courses. Those who choose the thesis program may count no more than 6 s.h. of thesis research and writing credit toward the degree. The M.S. is designed to be a terminal degree or a step toward the Ph.D.

A tentative plan of study for each student is determined through consultation with an advisor. An M.S. committee of at least three graduate faculty members, including at least two on the biomedical engineering faculty, is appointed by the dean of the Graduate College. The student's plan of study is reviewed by the committee before the student has completed 18 s.h. of course work. The plan of study then is submitted for review to the department chair.

M.S. students must maintain a g.p.a. of at least 3.00 on a minimum of 30 s.h. of graduate work and must successfully complete the final examination administered by their committee.

Candidates for the M.S. (thesis or nonthesis) must complete the following courses or their equivalents with a grade of B or higher.

- Advanced mathematics
- Human Physiology (027:130)
- Introduction to Biostatistics (171:161)

Individual study plans should include as much advanced work as individual aptitude and previous preparation permit.

**Doctor of Philosophy**

The Doctor of Philosophy in biomedical engineering requires a minimum of 72 s.h. of graduate work, including acceptable transfer credit. At least 42 s.h. must be earned in formal course work taken after the B.S. is awarded, and at least 12 s.h. must be earned for research and thesis. For students entering with an M.S., at least 18 s.h. of formal course work must be completed beyond the M.S., and at least 12 s.h. must be earned for research and thesis. Based on research progress, examination results, or other measures, the student's graduate committee may require additional formal course work to strengthen perceived areas of weakness.

Admission to the Ph.D. program is conditional until students successfully complete a qualifying examination. The biomedical engineering faculty administers the exam and decides whether the student's performance on it is adequate for admission to the Ph.D. program.

Admission to Ph.D. candidacy requires a g.p.a. of at least 3.25 on all graduate work done at The University of Iowa. Upon completion of the course work specified in the plan of study and with the required grade-point average and the advisor's recommendation, students are admitted to the comprehensive examination by their committee.

Having satisfactorily completed these examinations, students usually have only to complete and defend their dissertation at the final examination. Requirements for the Ph.D. generally can be completed in about three years beyond the master's degree.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants who have earned a baccalaureate or postbaccalaureate degree in engineering or in the mathematical or physical sciences, with a g.p.a. of at least 3.00, and who have a combined verbal and quantitative score of 1250 on the Graduate Record Examination (GRE) General Test are eligible to be considered for admission to the Master of Science program in biomedical engineering. Students with a lower grade-point average or GRE General Test scores may be considered for conditional admission. They must achieve regular standing within 8 s.h. of initial registration by attaining a g.p.a. of at least 3.00 at The University of Iowa and regular acceptance by the department faculty. Students who do not meet these requirements are subject to dismissal.

Reference letters, research interests, previous graduate grade-point average, and other factors may be considered in making admission decisions.

Admission to the Doctor of Philosophy in biomedical engineering is conditional until students successfully complete a qualifying examination.
Financial Support

Students are encouraged to apply for fellowships and assistantships. Contact the chair of the Department of Biomedical Engineering.

Facilities and Laboratories

Required Undergraduate Laboratories

Four dedicated undergraduate teaching laboratories are associated with the required and elective courses in biomedical engineering: Biomaterials Laboratory, Biomeasurements and Systems Laboratory, Biomechanics Laboratory, and Cell Biology for Engineers Laboratory.

BIOMATERIALS

The Biomaterials Laboratory is equipped to test varied properties of biomaterials, including hard and soft tissues and prostheses. The laboratory is used for 051:070 Biomaterials and Implant Design, and biomaterials and senior design projects.

BIOMEASUREMENTS AND BIOSYSTEMS

The Biomeasurements and Biosystems Laboratory is equipped to measure biomedical variables of clinical and physiological interest, design and build electronic instrumentation, and conduct modeling experiments in physiology. It is used for 051:040 Biological Systems Analysis I and 051:080 Data Acquisition Design Laboratory, elective courses in biomeasurements and biological systems analysis, senior design projects, and demonstrations in 051:030 Cell Biology for Engineers.

BIOMECHANICS

The Biomechanics Laboratory is equipped to perform experiments in biological flow analysis and in human musculoskeletal systems. The laboratory houses a pulse duplicator for simulating physiological pulsatile flow, a flow visualization set-up to analyze flow past stenosis and aneurysms, blood pressure and flow measurement devices, digital still and video cameras for kinematic analysis, a ski binding tester, a drop tower for impact testing, a two-channel EMG amplifier system, and a table-top material testing machine. The laboratory is used for 051:050 Biomechanics: Theory and Design, elective courses in cardiovascular and skeletal biomechanics, other elective courses, and senior design projects.

CELL BIOLOGY FOR ENGINEERS

The Cell Biology for Engineers Laboratory trains students in cell culture and biochemical analysis techniques as a foundation for future studies in quantitative cell-based studies. Students learn basic cell culture techniques, protein and nucleic acid analysis, adenovirus-mediated gene transfer techniques, microarray and analysis, and polymerase chain reaction (PCR) analysis of nucleic acids. They also are introduced to bioinformatics techniques used in cell biology. Major equipment in the lab includes laminar flow hoods, cell culture incubators, centrifuges, an ultracold freezer, protein and nucleic acid electrophoresis equipment, thermal cyclers, microscopes, an automated microplate reader, and varied support apparatuses used in cell-based studies. The lab is used for 051:075 Cell-Material Interactions, 051:130 Cell Biology for Engineering Lab, and 051:177 Graduate Cell Material Interactions.

Research Facilities and Laboratories

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY LABORATORY

The Bioinformatics and Computational Biology Laboratory is wired for high-speed networking (10- and 100-megabit and gigabit ethernet, hardwired and wireless, and ATM). It includes five dedicated Linux clusters, 126 computing systems, 178 CPUs, more than 100 gigabytes of RAM, and 2.5 terabytes of disk space. Computer resources include a dedicated compute server cluster of 18 Linux systems (36 CPUs) connected with a dedicated, switched, copper Gigabit Ethernet intranet--18 Dual AMD MP-2400 (2.2 GHz, 2 GB memory, 40 GB disk each); second dedicated compute server cluster of 16 Linux systems (32 CPUs) connected with a dedicated, switched, fiber-optic Gigabit Ethernet intranet--12 Dual Pentium III (500 MHz, 1 GB memory, 9 GB disk each), and four Dual Pentium III (500 MHz, 2 GB memory, 9 GB disk each); and third dedicated compute cluster of nine Linux systems (32 CPUs) connected with a dedicated, switched, fiber-optic Gigabit Ethernet intranet--eight Dual Pentium III (866 MHz, .5 GB memory, 45 GB disk each), and one Dual Pentium III (866 MHz, 1 GB memory, 45 GB disk each). There are two additional clusters: an 8-node cluster of Pentium II class machines, and a 12-system heterogeneous cluster of various SUNs, HPs, and SGIs; four dedicated, dual fiber channel, redundant disk storage systems (RAID) 412 GB usable each. An additional 78 computers are used
as compute servers, web servers, database servers, file servers, workstations, laptops, and for other developmental and experimental needs.

BIOMATERIALS LABORATORY

The Biomaterials Laboratory is equipped to characterize implant materials and biological tissues for their mechanical and thermal properties. Hard tissue histological slide preparations, for both microradiograph and optical, can be made for the study of interactions between bone and implant interactions. Metallographic sample preparations can be made and analyzed under optical microscopes.

The laboratory contains MTS (model 812) materials testing machine with recorder and controller; automatic data acquisition and process computer dedicated to the MTS machine; differential scanning calorimeter (Perkin-Elmer DSC-4 model); Omega x-ray generator with microradiographic attachment; Bronwill thin sectioning saw; Buehler Isomet thin sectioning saw; Buehler metallographic and petrographic grinding and polishing wheels; IR, polarizing, reflection research type microscopes; temperature-controlled bath; Lindberg tube furnace; strain gage attachment and measurement devices; videotape and play equipment; and conventional and vacuum oven with a diffusion pump.

CARDIOVASCULAR BIOMECHANICS LABORATORY

The Cardiovascular Biomechanics Laboratory houses an EMS Whitest uniaxial tension/compression testing system, a pulse-duplicating apparatus with flow loop, a spectrophotometer, silicone prototype fabrication utilities, high-speed/high-resolution cameras, a Sun Solaris workstation, and personal computers. The lab is equipped for soft tissue tensile/compression testing and viscoelastic creep/relaxation testing; simulation of flow through fabricated, anatomically realistic, patient-specific models of vasculature and heart valves; quantification of protein content in soft tissues; fabrication of realistic, compliant prototypes of human organs; and computational modeling of hemodynamics and tissue mechanics of normal and pathological cardiovascular organs.

IOWA SPINE RESEARCH CENTER BIOMECHANICS LABORATORY

The Iowa Spine Research Center Biomechanics Laboratory is fully equipped to perform studies of tissue and/or specimen response to mechanical loads. An MTS Bionix machine (with extended columns) servohydraulic testing machine permits application of uniaxial tension or compression in concert with axial torsion under displacement (rotation) or load control. In addition, the laboratory has a large base plate with T-slots, grips, an environmental chamber, and an independent controller with specialized test control and data acquisition and analysis routines.

An MTS Model 810 servohydraulic testing machine permits uniaxial tension or compression under displacement, load, or strain control. A bank of fatigue testing machines is planned.

An apparatus for testing spinal motion segments for their balance point and buckling behaviors also is available.

JOLT/VIBRATION/SEATING LABORATORY

The Jolt/Vibration/Seating Laboratory is equipped for investigation of the biomechanics of the spine, particularly problems related to low back pain due to the interaction between people and equipment in jolt (impact) and vibration environments. Three shakers are available to simulate impact and vibration environments.

Human responses are measured using equipment including load cells, electromyography, accelerometry, position sensors, and pressure pads. Portable sensors and data recorders are used to evaluate impact and vibration environments in the field and compare them to domestic and international guidelines and standards.

LARGE-SCALE DIGITAL CELL ANALYSIS LABORATORY

The Large-Scale Digital Cell Analysis Laboratory is involved in development of the large-scale digital cell analysis system (LSDCAS) and model-based approaches to problems of general biological interest. The facilities include the Real-Time Cell Analysis Laboratory, in the Seamans Center, with 10 Linux workstations, a Power Mac, printers, and scanners; and Real-Time Cell Analysis Data Center, also in the Seamans Center, with two Itanium servers (36 GB RAM/144 GB RAID storage), a fiber channel RAID storage system (2 terabytes), two dual-Pentium servers (2 MB RAM/36 GB disk storage), dual 30 amp/240 volt uninterruptible power supplies, 30-slot DLT tape library, fiber channel switch, fiber channel/SCSI bridge, rack-mount monitor/keyboard, and KVM switch.

The Quantitative Real-Time Cell Analysis Research Facility, located in the Medical Education and Research Facility, has a LSDCAS system consisting of three automated microscope systems capable of performing real-time single-cell analysis experiments, located in a dedicated darkroom to regulate illumination conditions. Each microscope system is controlled by a microcomputer interfaced to a digital camera and a microscope controller. This facility also includes a small tissue culture support laboratory containing a cell incubator, and access to tissue culture hoods, freezers, refrigerators, and other equipment. The Biomedical Research Laboratory, in the Medical Education Building, has a
tissue culture hood, dual-chamber incubator, Coulter cell counter, protein and nucleic acid gel electrophoresis and blotting apparatus, refrigerators, freezers, and a variety of tools used for biochemistry, cell biology, and molecular biology.

ORTHOPAEDIC BIOMECHANICS LABORATORY

The Orthopaedic Biomechanics Laboratory occupies 20 rooms on the ground floor of Westlawn. It is configured primarily for macroscopic-level physical testing of musculoskeletal constructs (e.g., bones, articular joints, orthopaedic implants) and for corresponding computational modeling. The physical testing area includes a multipurpose wet lab, a multipurpose dry lab, a surgical preparation room, a mechanical testing room, a machine shop, and a specimen storage area. The computational modeling area is arranged around eight separate workstation seats in two adjoining partially partitioned areas. Adjacent to these core operational areas are offices for faculty, research staff, students, and fellows; a secretarial/reception area; a conference room; and a library.

SPINE BIOMECHANICS AND ERGONOMICS LABORATORY

Located at University of Iowa Hospitals and Clinics, the Spine Biomechanics and Ergonomics Laboratory is equipped for investigation of the biomechanics of the spine, particularly problems related to production and treatment of low back pain. For example, electromyography equipment, accelerometry, a motion capture system, and a force plate are used to study response to sudden loads. A stadiometer is used to evaluate how varied activities affect shrinkage (creep) in the spine. A pressure pad is used to study interface pressures between people and chairs or beds.

SPINE RESEARCH LABORATORY

The Spine Research Laboratory is equipped for interdisciplinary research. The laboratory's MTS Bionix (with extended columns) servohydraulic testing equipment permits application of uniaxial tension or compression together with axial torsion under displacement or load control. The laboratory also has a fully automated 3-D motion measuring system. These devices are used to test mechanical properties of biomechanical joints and tissues, and for biomechanical evaluation of the performance of surgical treatment modalities. Other equipment includes digital cameras, surgical tools, and sensors (i.e., LVDTs, six-degrees-of-freedom load cell, pressure transducers, digital inclinometers).

A biaxial biomechanical culture system is available for application of controlled compression and/or shear forces onto the intervertebral disc during culture, in order to investigate the disc's biological responses to mechanical loads. This culture system is used in conjunction with an incubator in which cells and tissues can be cultured. Basic equipment for histology and immunohistochemical analyses includes a microtome, ovens, a microscope, and glassware for chemical processes.

TISSUE ENGINEERING LABORATORY

The Tissue Engineering Laboratory is outfitted with a fume hood, sink, laboratory counters, tables, and major tissue culture equipment, including a Baker SG3 laminar flow hood, a NuAir water jacked incubator, an autoclave, a vacuum pump, a Zeiss Axiolab S-100 phase contrast and bright field microscope with a computer interface, computer-controlled peristaltic pumps, a computer-controlled water bath, and a refrigerator and freezer.

The inverted microscope has an image capture system interfaced to a computer workstation with image processing software. A variety of sensors for performing temperature, pressure, and flow measurements also are available. The laboratory's computers are equipped with software for graphical, numerical, image analysis, word processing, and symbolic computation. Liquid nitrogen dewars, and CO2 and N2 tanks have been installed. An Ussing chamber with electrodes and a high impedance Keithley electrometer also are available.

UPPER EXTREMITY BIOMECHANICS LABORATORY

The Upper Extremity Biomechanics Laboratory is configured for image analysis, upper extremity physical testing, and radiographic archives. A two-sensor Optotrak system, coupled with The MotionMonitor software package, is used to collect upper-extremity kinematic data.

Biomedical Engineering Courses

Special Topics

051:000 Cooperative Education Training Assignment: Biomedical Engineering 0 s.h.

Biomedical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of faculty advisor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites and Corequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>051:002</td>
<td>Half-time Cooperative Education Training Assignment: Biomedical Engineering</td>
<td>0 s.h.</td>
<td>Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>051:029</td>
<td>First-Year Seminar</td>
<td>1 s.h.</td>
<td>Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Prerequisite: first- or second-semester standing.</td>
</tr>
<tr>
<td>051:030</td>
<td>Cell Biology for Engineers</td>
<td>2 s.h.</td>
<td>Introduction to fundamental concepts in quantitative cell biology from an engineering perspective. Repeatable. Prerequisite: 002:010. Corequisites: 027:130 and 051:130.</td>
</tr>
<tr>
<td>051:040</td>
<td>Biological Systems Analysis I</td>
<td>3 s.h.</td>
<td>Application of principles of linear system (control) theory to analysis of biological systems; development of computer simulation techniques to study dynamic response of physiological systems. Offered fall semesters. Prerequisites: 22M:034, 027:130, and 051:130. Corequisite: 057:017.</td>
</tr>
<tr>
<td>051:050</td>
<td>Biomechanics: Theory and Design</td>
<td>3 s.h.</td>
<td>Introduction to biomechanics theory and design, with application to musculoskeletal and cardiovascular systems. Prerequisites: 027:130 and 057:019.</td>
</tr>
<tr>
<td>051:060</td>
<td>Data and Image Acquisition and Analysis</td>
<td>4 s.h.</td>
<td>Introduction to acquisition and analysis of data collected from living systems; concepts of analog and digital circuit design, with emphasis on circuits for collecting data for biomedical applications using operational amplifiers, active filters, conversion, and interface to microcomputers; patient safety; clinical circuits; analysis of data using time domain, spatial domain, and Fourier domain techniques; time domain and spatial domain sampling, Nyquist sampling theorem; physics, acquisition, and analysis of medical images, especially those collected from X-ray, CT, MR, and ultrasound systems. Prerequisites: 051:040, 057:017, and 059:008. Corequisite: 051:080.</td>
</tr>
<tr>
<td>051:062</td>
<td>Design for Manufacturing</td>
<td>3 s.h.</td>
<td>Fundamentals of design, engineering graphics, and manufacturing processing; computer graphics using Pro/ENGINEER for CAD and CAM; typical industrial processes, including casting, welding, machining, forming; laboratory exercises and projects. Corequisite: 057:015. Same as 056:032, 058:032.</td>
</tr>
<tr>
<td>051:070</td>
<td>Biomaterials and Implant Design</td>
<td>3 s.h.</td>
<td>Properties, biocompatibility characteristics, performance requirements of materials for implants. Offered fall semesters. Prerequisites: 004:012 and 057:019.</td>
</tr>
<tr>
<td>051:080</td>
<td>Data Acquisition Design Laboratory</td>
<td>2 s.h.</td>
<td>Laboratory for 051:060; practice in designing and building electronic circuits to measure, acquire, and analyze biosignals, and in acquiring and analyzing images from the human body. Corequisite: 051:060.</td>
</tr>
<tr>
<td>051:085</td>
<td>Biomedical Engineering Senior Design I</td>
<td>4 s.h.</td>
<td>Individual or group work on a creative design project involving current problems in biomedical engineering; interdisciplinary projects involving biomedical engineering and health sciences faculty members; first semester of a year-long senior capstone design project. Prerequisites: 051:050, 051:075, 051:080, and senior standing.</td>
</tr>
<tr>
<td>051:086</td>
<td>Biomedical Engineering Senior Design II</td>
<td>4 s.h.</td>
<td>Second semester of a year-long senior capstone design project begun in 051:085. Prerequisites: 051:085 and senior standing.</td>
</tr>
<tr>
<td>051:090</td>
<td>First-Year Forum</td>
<td>0 s.h.</td>
<td>Presentations by faculty, graduate students, collaborators from the Carver College of Medicine, and Colleges of Dentistry and Law; may include visits to laboratories and industries.</td>
</tr>
<tr>
<td>051:091</td>
<td>Professional Seminar: Biomedical Engineering</td>
<td>0 s.h.</td>
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</tbody>
</table>
Professional aspects of biomedical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: sophomore or higher standing.

051:092 **Leadership and Resourcefulness**
Development of leadership skills and resourcefulness for real-world professional work and life. Repeatable. Prerequisite: completion of six semesters of 051:090 and 051:091 combined.

051:098 **Individual Investigations: Biomedical Engineering**
Individual projects for biomedical engineering undergraduate students, such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of instructor.

051:121 **Introduction to Bioinformatics**
Basics of genetics and molecular biology; overview of bioinformatics and genome science, including genome projects, functional genomics, phylogenetics, proteomics, microarrays, DNA polymorphisms, data-mining algorithms; experimental methods, analytical approaches. Prerequisite: 002:128 or 099:120 or graduate standing or consent of instructor. Same as 002:169, 055:121.

051:122 **Computational Genomics**

051:123 **Bioinformatics Techniques**
Informatics tools and techniques applied to modern problems in biomedicine and basic life sciences; common tools, experience applying tools in contemporary problem settings; genomics and genetics, how to sequence a genome, transcription and expression, SNPs, Perl, BioPerl, Perl modules, Ensembl API, BLAST/BLAT, NCBI, UCSC, Ensembl Genome browsers, linkage, association, disease gene identification. Prerequisites: 002:081 and 059:009, or equivalents, or graduate standing and consent of instructor.

051:130 **Cell Biology for Engineering Lab**

051:162 **Digital Human Modeling and Simulation**
Fundamentals of using computational methods in modeling, simulating, and animating articulated kinematic chains such as robots and humans; underlying mathematics, introductory concepts in kinematics and dynamics, serial chain kinematics and multibody dynamics; methods from kinematics and dynamics, coupled with biomechanical concepts, provide an integrated approach to predicting and analyzing serial link motion (e.g., human and robotic manipulator motion). Prerequisite: 057:010. Same as 058:136.

051:178 **Fast-Track Biomedical Engineering Design I**
First semester of year-long senior capstone design project; individual or group design project involving biomedical engineering problems. Prerequisites: 051:050, 051:075, 051:080, and senior standing.

051:179 **Fast-Track Biomedical Engineering Design II**
Second-semester of year-long senior capstone design project begun in 051:178. Prerequisites: 051:178 and senior standing.

**Biomaterials**

051:168 **Polymer Fundamentals**
Basic knowledge of polymers required as a foundation for other UI courses on polymers: basic polymer terminology, polymer groups, polymerization mechanisms, molecular weight determination. Five weeks. Same as 052:140.

051:169 **Polymers as Biomaterials**
Structure-property relationships and in vivo and in vitro performances of polymers used to manufacture implants and other devices. Prerequisite: 051:070 or equivalent.

051:170 **Graduate Biomaterials and Implant Design**
Properties, biocompatibility characteristics, performance requirements of materials for implants. Prerequisite: 004:012.
051:173 Metals as Biomaterials
Property-structure relationship of metals used to fabricate implant materials; their interactions in vivo. Prerequisite: 051:070 or equivalent.

051:175 Tissue Engineering
Introduction to tissue engineering; scaffolds, fundamentals, principles. Same as 046:290, 052:227.

051:176 Biomaterials Laboratory
Practical experience in design, fabrication, and testing of biomaterials and devices; mechanical testing, tissue response, design to optimize response. Basic understanding of materials required. Prerequisite: 051:070.

051:177 Graduate Cell Material Interactions
Current thought and techniques in the engineering and assessment of biomaterials; companion course to 051:070 and 051:075. Prerequisite: senior or graduate standing.

051:215 Interfacial Engineering for Biological Systems
Survey of current literature on interfacial engineering for biomedical engineering; student presentation and discussion of articles. Prerequisite: organic or polymer chemistry or consent of instructor.

Biomechanics/Biofluids

051:149 Graduate Biomechanics
Understanding the human body from an engineering mechanics perspective; challenges of applying engineering principles to living systems, illustrated through real-world examples. Repeatable. Prerequisite: 057:019.

051:150 Musculoskeletal Biomechanics
Principles of solid mechanics applied to analytical, experimental investigation of biological systems; emphasis on applications in kinesiology of human musculoskeletal system. Prerequisites: 057:019 and graduate standing.

051:151 Intermediate Mechanics of Deformable Bodies
Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisite: 057:019. Same as 053:140, 058:150.

051:152 Ergonomics of Occupational Injuries
Epidemiology, surveillance systems, ergonomics, biomechanics, physiology, psychology, legal aspects, and cost control. Prerequisite: 051:050 or 051:150.

051:154 Cardiac and Vascular Mechanics
Bio-solid mechanics of the cardiovascular system; mechanical properties of ventricles, valves, and blood vessels, their normal function, how they are affected by disease states; design of artificial organs, prostheses. Prerequisite: 057:019.

051:155 Cardiovascular Fluid Mechanics

051:157 Introduction to Applied Biomedical Finite Element Modeling
Introduction to finite element modeling as applied to biomechanics-related applications. Prerequisites: 051:050 and 057:019. Corequisite: 058:115.

051:158 Biomechanics of Orthopaedic Implants

051:159 Design of Circulatory Implants and Artificial Organs
Exploration of current innovations and new technologies; examination of various devices currently on the market from a standpoint of design variables and objectives (i.e., stents, heart valves, dialyzers, VADs, artificial organs); biomedical engineers’ vital role in design and improvement of these implants. Prerequisite: 051:155 or consent of instructor. Corequisite: 051:154 or consent of instructor.

051:220 Human Response to Vibration
Exploration of the human body, a complex mechanism exposed to mechanical shock and vibration from many sources, under many conditions; interactions and applicable exposure standards, effects of whole-body and hand-arm vibration. Prerequisite: graduate standing in College of Engineering or College of Public Health, or consent of instructor.

051:253 Spine Mechanics
Biomechanics applied to mechanics of the human spine; clinical aspects; state-of-the-art in spine research; basic engineering principles for biomechanical analysis. Prerequisite: 051:150.

051:255 Advanced Biofluid Mechanics
Hemodynamic theories of atherogenesis, Womersley models, steady and unsteady flows in curavature, bifurcation and branching arterial segments, flow dynamics past prosthetic implants, experimental and computational models, particulate and mass transport simulations in human circulation. Prerequisite: 051:155.

051:257 FE Analysis in Orthopaedic Biomechanics
Finite element modeling techniques applied to musculoskeletal (orthopaedic) biomechanics; use of ABAQUS finite element software. Prerequisite: 051:150. Corequisites: 051:158 and 058:115.

Bioelectrical Engineering

051:141 Graduate Biological Systems Analysis
Application of principles of linear system (control) theory to analysis of biological systems; development of computer-simulation techniques to study dynamic response of physiological systems. Prerequisite: graduate standing.

051:148 Digital Image Processing
Mathematical foundations and practical techniques for digital manipulation of images; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image pre-processing, edge detection, filtering; image segmentation. Prerequisites: 051:040 or 055:040, and 051:060 or 055:043. Same as 055:148.

051:161 Graduate Data and Image Acquisition and Analysis
Acquisition and analysis of data collected from living systems; concepts of analog and digital circuit design, with emphasis on circuits data collection for biomedical applications using operational amplifiers, active filters, conversion, and microcomputer interface; patient safety, clinical circuits, data analysis using time domain, spatial domain, Fourier domain techniques; time domain and spatial domain sampling, Nyquist sampling theorem; physics, acquisition, and analysis of medical images, with emphasis on X-ray, CT, MR, ultrasound. Prerequisite: 027:130 or equivalent. Corequisite: 051:181.

051:181 Graduate Data Acquisition Design Laboratory
Corequisite laboratory for 051:161; practice in designing and building electronic circuits to measure, acquire, and analyze biosignals; and in acquiring and analyzing images obtained from the human body. Prerequisites: a basic electronics course and graduate standing. Corequisite: 051:161.

051:185 Medical Imaging Physics
Physics and data acquisition techniques of major medical imaging modalities (X-ray, CT, MR, ultrasound, PET, SPECT); physical interactions of energy with living tissue; principles and methods for acquiring imaging data and subsequent image construction; how individual modalities influence image quality; MATLAB programming required. Second in a medical imaging sequence. Prerequisites: background in physics and computers, and anatomy or biology or physiology.

051:186 Multidimensional Medical Imaging Process
Algorithms developed to process and analyze large volumetric data sets; physics of CT, MRI, ultrasound, 3-D convolution and filtering, geometric transformations, shape features, surface segmentation, regional segmentation, surface tiling, surface reconstruction, volumetric registration. Third in a medical imaging sequence. Prerequisite: 051:185.

**051:187 Health Informatics I**
3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 056:186, 074:191, 096:283, 174:226, 200:110.

**051:189 Health Informatics II**
3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as 021:280, 056:287, 074:192, 096:289, 200:120.

**051:280 Functional Magnetic Resonance Imaging**
2-3 s.h.
Basic physics principles of functional magnetic resonance imaging and approaches to data acquisition, including BOLD imaging, arterial spin labeling, and magnetic source imaging; data analysis strategies; paradigm design and development. Same as 132:250.

**051:286 Contemporary Topics in Medical Imaging**
3 s.h.
Presentation of recent research results and clinical applications of medical imaging techniques. Prerequisites: 051:185, and 051:186 or equivalent.

**051:287 Insight into Images**
3 s.h.

**Graduate Seminars, Advanced Topics, Research**

**051:191 Seminar in Biomedical Engineering**
0 s.h.
Presentation of recent advances in biomedical engineering. Prerequisite: graduate standing.

**051:198 Individual Investigations: Biomedical Engineering**
arr.
Individual projects for biomedical engineering graduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

**051:199 Research: Biomedical Engineering M.S. Thesis**
arr.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of the requirements for the M.S. with thesis in biomedical engineering. Prerequisites: graduate standing and consent of advisor.

**051:298 Advanced Individual Investigations in Biomedical Engineering**
arr.
Advanced individual projects such as laboratory study, engineering design projects, analysis and simulation of an engineering system, computer software development, research. Prerequisite: graduate standing.

**051:299 Research: Biomedical Engineering Ph.D. Dissertation**
arr.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. with thesis in biomedical engineering. Prerequisite: consent of advisor.
Chemical and Biochemical Engineering

Chair: David W. Murhammer
Professors: Gregory R. Carmichael, Douglas Flanagan, Vicki Grassian, David W. Murhammer, David G. Rethwisch, Alec B. Scranton, Venkiteswaran Subramanian, Dale Wurster
Professor emeritus: J. Keith Beddow
Associate professors: Gary Aurand, Chris Coretsopoulos, Umran Dogan, C. Allan Guymon, Stephen K. Hunter, Lee Kirsch, Tonya L. Peeples, Ramaswamy Subramanian
Assistant professors: Jennifer Fiegel, Julie L.P. Jessop, Eric Nuxoll, Aliasger Salem, Charles Stanier
Lecturer: Audrey Butler
Undergraduate degree: B.S.E. in Chemical Engineering
Graduate degrees: M.S., Ph.D. in Chemical and Biochemical Engineering
Web site: http://www.cbe.engineering.uiowa.edu/

Chemical and biochemical engineers combine engineering principles with knowledge of mathematics and specific sciences—chemistry, the biological sciences, and physics—to develop and operate processes that convert raw materials into products that benefit society. For example, biochemical engineers might develop and operate processes to convert switchgrass into biofuels or to mass produce an antibiotic.

Chemical and biochemical engineers engage in a wide variety of activities that benefit the global community. Fuel cells, solar energy, and biorenewable fuels (e.g., biodiesel or ethanol) fall within the realm of chemical engineering. Chemical engineering distinguishes itself from other engineering professions with its reliance on chemical reactions and physicochemical transformations to produce a wide variety of important materials and products.

Biochemical engineers are involved in a wide variety of industrial biocatalytic, fermentation, and cell culture processes that generate products ranging from the high fructose corn syrup in soft drinks to recombinant human insulin.

As part of their training, chemical and biochemical engineers learn ethical design and a respect for the larger issues in any design, such as community health, employee safety, and the global implications of the design. The University of Iowa's curriculum emphasizes chemical process safety and environmentally conscious chemical engineering design.

Chemical and biochemical engineers work in a wide range of industries, including petroleum and specialty chemical production, polymer and plastic production, food processing, microelectronics production, pharmaceutical production, biochemical processing, and environmental compliance. Potential jobs include production, process development, plant design and construction, and fundamental research. Many experienced chemical and biochemical engineers move through management ranks to high-level administrative positions.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in chemical engineering.

The program produces graduates who have a strong foundation of scientific and technical knowledge and are equipped with problem solving, teamwork, and communication skills that will serve them throughout their careers. The program’s educational objectives are to produce graduates who:

- pursue careers as practicing chemical engineers in fields such as pharmaceuticals, microelectronics, chemicals, polymers/advanced materials, food processing, energy, or environmental engineering;
- pursue advanced studies in disciplines such as chemical engineering, environmental engineering, medicine, law, or business; and
- assume professional leadership roles.

The program uses the following methods and strategies to achieve its educational objectives:

- foster a personalized, supportive environment for all students by taking advantage of the unique combination of a small college atmosphere in a major research university;
- enrich the undergraduate experience through cultural diversity, international opportunities, and experiential learning;
- provide a solid foundation and understanding of the fundamental principles of mathematics, science, and engineering;
- provide students with experience in learning and applying tools (e.g., computer skills) to the solution of theoretical and open-ended chemical engineering problems;
- provide students with opportunities to participate in multidisciplinary teams, and to develop and practice written and oral communication skills, both within the team and to a broader audience;
- provide students with opportunities to design and conduct chemical engineering experiments, and to design systems, components, and chemical processes to meet specific needs and constraints; and
- provide a contemporary grounding in professional responsibility, including ethics, the global and societal impact of engineering decisions, and the need for lifelong learning.

Bachelor of Science in Engineering
The Bachelor of Science in Engineering requires a minimum of 128 s.h. The chemical engineering major provides a broad education at the leading edge of technology. It emphasizes fundamental concepts, problem solving, laboratory techniques, and communication skills. The biological sciences join physics, chemistry, and mathematics as foundation disciplines for chemical engineering.

The B.S.E. curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005 Engineering Problem Solving I, 059:006 Engineering Problem Solving II, and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. For information on B.S.E. curriculum stems and common course requirements, see Bachelor of Science in Engineering in the College of Engineering section of the Catalog.

For chemical engineering students, the sophomore, junior, and senior years emphasize chemical engineering courses such as process calculations, engineering flow and heat exchange, chemical engineering thermodynamics, mass transfer and separations, chemical reaction engineering, chemical process safety, chemical engineering laboratories, biochemical engineering, process dynamics and control, and process design. Experience in instrumentation, analysis, and design is obtained through an integrated laboratory program. Routine use is made of computer-based data analysis, simulation, and design.

Students are required to participate in at least one enriching activity, which may include a research experience, a cooperative education or internship experience, study abroad, completion of the Certificate in Technological Entrepreneurship, or other approved experiences.

Chemical engineering students may gain depth of knowledge related to a career path through their selection of science, engineering, humanities, and social science electives. Several preapproved elective focus areas may help students define potential careers.

Students must select elective focus area courses according to guidelines established by the Department of Chemical and Biochemical Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

Seminars do not count toward the 128 s.h. required for the degree.

**FIRST YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:011</td>
<td>Principles of Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>010:003</td>
<td>Accelerated Rhetoric (or 010:001-010:002)</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:005</td>
<td>Engineering Problem Solving I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:090</td>
<td>First-Year Engineering Seminar</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>004:012</td>
<td>Principles of Chemistry II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:032</td>
<td>Engineering Mathematics II: Multivariable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:033</td>
<td>Engineering Mathematics III: Matrix Algebra</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>029:081</td>
<td>Introductory Physics I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>052:090</td>
<td>CBE Departmental Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>059:006</td>
<td>Engineering Problem Solving II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:034</td>
<td>Engineering Mathematics IV: Differential Equations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>052:041</td>
<td>Process Calculations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:007</td>
<td>Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>059:008</td>
<td>Engineering Fundamentals II: Electrical Circuits</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:009</td>
<td>Engineering Fundamentals III: Thermodynamics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
General education component course

Second Semester

004:121 Organic Chemistry I 3 s.h.
052:091 Professional Seminar: Chemical Engineering 0 s.h.
052:103 Chemical Engineering Thermodynamics 3 s.h.
052:151 Engineering Flow and Heat Exchange 3 s.h.
General education component course 3 s.h.
Statistics elective 3 s.h.

THIRD YEAR

First Semester

004:122 Organic Chemistry II 3 s.h.
004:141 Organic Chemistry Laboratory 3 s.h.
052:091 Professional Seminar: Chemical Engineering 0 s.h.
052:161 Mass Transfer and Separations 3 s.h.
052:171 Thermodynamics/Transport Laboratory 3 s.h.
057:015 Materials Science 3 s.h.

Second Semester

052:091 Professional Seminar: Chemical Engineering 0 s.h.
052:105 Chemical Reaction Engineering 3 s.h.
052:172 Chemical Reaction Engineering/Separations Laboratory 2 s.h.
052:187 Chemical Process Safety 3 s.h.
Elective focus area courses 6 s.h.
General education component course 3 s.h.

FOURTH YEAR

First Semester

052:091 Professional Seminar: Chemical Engineering 0 s.h.
052:108 Introduction to Biochemical Engineering 3 s.h.
052:184 Chemical Engineering Process Design I 2 s.h.
052:185 Process Dynamics and Control in Design 3 s.h.
Advanced chemical science elective 3 s.h.
Elective focus area courses 6 s.h.

Second Semester

052:092 Senior Enriching Activities Seminar 0 s.h.
052:186 Chemical Engineering Process Design II 3 s.h.
Advanced chemical science electives 6 s.h.
Elective focus area course 3 s.h.
General education component course 3 s.h.

Elective Focus Area

The elective focus area enables students to gain depth of knowledge in a career path. Students meet with their chemical engineering academic advisor to discuss career options and develop a plan for choosing electives based on their career interests. The department offers preapproved elective focus areas in biochemical engineering, pharmaceutics, chemical process engineering, polymers, energy and environment, pre-medicine, business, and entrepreneurship.
Students may prefer to develop an individualized elective focus area, which is subject to approval by the department's curriculum committee. See the Department of Chemical and Biochemical Engineering web site for detailed descriptions of preapproved elective focus areas, guidelines for tailored elective focus areas, and typical four-year study plans based on elective focus areas.

**Joint B.S.E./M.S.**

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for chemical engineering undergraduates who intend to earn an M.S. in chemical and biochemical engineering. B.S.E./M.S. students may count 12 s.h. of course work (typically advanced chemistry sequences and electives) toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application and statement of purpose to the chair of the Department of Chemical and Biochemical Engineering.

**Graduate Programs**

The Department of Chemical and Biochemical Engineering offers a Master of Science, with and without thesis, and a Doctor of Philosophy. Through course work and research, graduate students gain an understanding of the principles of engineering science and use those principles in contemporary applications related to energy, the environment, biotechnology, and materials. The department emphasizes research, since most opportunities for graduates are in research and development.

**Research and Study Areas**

Current research strengths of the Department of Chemical and Biochemical Engineering are in the areas of global and regional atmospheric modeling, biomaterials medical engineering, cellular engineering, photopolymerization, biocatalysis, and biofuels.

**BIOCHEMICAL ENGINEERING**

Biochemical engineering involves the industrial application of enzymes, microorganisms, cells, and tissues for production of chemicals, pharmaceuticals, and other materials of commercial value.

The department is working to solve problems with the use of insect cell culture for recombinant protein and viral insecticide production. Research is being conducted to improve the quality and quantity of recombinant proteins produced in large-scale bioreactors. In addition, a continuous viral insecticide production system is being developed for the large-scale production of these environmentally safe alternatives to chemical insecticides. The insect cell/baculovirus system is being used as a model system to investigate the role of oxidative stress in viral cytotoxicity.

Carbon dioxide accumulation, which commonly occurs in large-scale bioreactor systems, affects insect cell growth; the department's researchers are investigating the corresponding effect on insect cell growth and the baculovirus infection process.

The department works to design technologies for the characterization and use of extremophiles, organisms that possess unusual abilities to survive in harsh chemical environments. In these studies, novel bioreactor systems that can withstand extremes of temperature, pressure, pH, and salinity are being developed. Extremophile strategies for survival also are being studied, with the aim of discovering unique enzymes for industrial application as well as evaluating molecular interactions that govern protein stability under extreme conditions.

In addition to the study of natural extremophiles, efforts to engineer stability in biocatalysts for industrial processing are under way. Novel solvent-tolerant enzymes and organisms for environmentally beneficial chemical reactions are being generated using molecular biology tools. Combinations of chemical and biological processing are being used to produce valued chemicals from renewable feedstocks. This work contributes to the interdisciplinary training of engineers and scientists to address the challenges of minimizing and cleaning up environmental pollution, while maximizing the economic benefits of chemical processing.

The department also conducts research in structural enzymology, molecular mechanisms of host-pathogen interactions, and biocatalysis. The laboratory uses biophysical, structural, and molecular biology techniques to understand the details of enzyme action. This information is used to design and engineer biocatalysts for the production of chiral compounds. Work also is under way on cellular recognition and signaling processing during infection and inflammation. Knowledge gained from these studies aids the design of drugs and biological sensors for bacterial presence.

The integration of biotechnology with traditional chemical engineering has led to an interdisciplinary area involving
other engineering departments and the Departments of Chemistry, Biology, Biochemistry, Free Radical and Radiation Biology, and Microbiology and the College of Pharmacy. This focus includes involvement in the University's Center for Biocatalysis and Bioprocessing, whose fermentation capabilities are highlighted by its 1,500-liter fermentor.

**BIOMEDICAL RESEARCH**

The department's research involves a multidisciplinary approach to solving problems in the medical field, particularly in drug delivery and biomaterials.

Researchers are working to develop safe delivery systems that target drugs precisely in the human body and avoid premature metabolism or elimination. To treat respiratory infections, micron-sized particles are being engineered with properties that enhance aerodynamic performance, particle stability, and targeting within the respiratory tract. Polymeric vehicles are being designed to provide sustained protection and prevention against cancers by kick-starting the immune system. Finally, work is under way to overcome barriers to efficient delivery of DNA, with the potential to provide cures for genetic disorders such as cystic fibrosis and X-Linked Severe Combined Immunodeficiency (X-SCID). This work brings together collaborators from the Carver College of Medicine, the Colleges of Dentistry and Pharmacy, and the Departments of Chemistry and Biomedical Engineering.

In the biomaterials realm, new materials are being developed that can interact with the human body to perform certain functions while maintaining compatibility. A project with the Department of Ophthalmology and Visual Sciences involves development of biodegradable stent materials to alleviate a serious eye disease induced by a blood clot in the central retinal vein. Research with the Department of Otolaryngology--Head and Neck Surgery is exploring the development of photo-patterned surfaces for directed growth of cells to improve cochlear implants. Current research in the tissue engineering field applies microfabrication techniques to develop scaffolds that are biodegradable and biocompatible with cell-interactive properties, and that directly incorporate controlled-release functionality within the scaffold.

The Department also conducts research that is focused on self-assembling systems, rational design of novel drug and gene delivery systems, and development of sophisticated scaffolds for tissue-specific regeneration. In tissue engineering, microfabrication techniques are applied to novel biomaterials to provide spatial control over tissue formation and to integrate minimally invasive scaffold delivery strategies. In drug and gene delivery, researchers are exploring the synergistic application of degradable particle technology, CpG oligonucleotides, and heat-shock protein therapy for generating sustained, stronger immune responses against carcinomas.

Students involved in animal research have access to the University's Office of Animal Resources, which is adjacent to the University of Iowa Hospitals and Clinics.

**ENERGY AND ENVIRONMENT**

Chemical engineers are well-suited to make major contributions toward meeting challenges for the environment, energy, and sustainable development. The Department of Chemical and Biochemical Engineering has an active research program in the environmental areas of air pollution, biofuels, atmospheric chemistry, atmospheric CO2 fluxes, environmental change, bioremediation, and the design of new environmentally compatible technologies. Particular emphasis is placed on the chemistry and physics of local, regional, and global air-pollution problems. Research in support of this activity includes high-speed computing and detailed sensitivity analysis.

This work involves three centers and institutes on campus. The Center for Global and Regional Environmental Research brings together University scientists and scholars from more than 20 disciplines, including chemistry, civil and environmental engineering, geography, geology, law, and medicine. The center's chief area of concern is environmental change. Chemical and biochemical engineering researchers interact with scientists at IIHR--Hydroscience & Engineering, a research institute focusing on applied fluid mechanics; their collaborations involve environmental fluid mechanics and air pollution field studies. The Nanoscience & Nanotechnology Institute at UI provides an interdisciplinary home for chemical and biochemical researchers working on the development, application, and environmental and health effects of nanomaterials.

**PHOTOPOLYMERIZATION**

Photopolymerizations are chain reactions in which a liquid monomer is converted to a solid, durable polymer in a process triggered by light of the appropriate wavelength. The use of light, rather than heat, to drive a polymerization reaction offers advantages in developing new processes or products.

Photopolymerizations provide both spatial control and temporal control of reactions, since light can be directed to locations of interest in the system and is easily shuttered on or off. Photopolymerizations also provide solvent-free formulations, which reduce the emissions of volatile organic pollutants, and they exhibit extremely rapid reaction rates. These advantages have led to tremendous growth in the application of photopolymerizations in the private sector, but much of this growth has occurred without a fundamental understanding of the underlying chemical processes.
The department's research in this area focuses on comprehensive characterization of the kinetics, mechanisms, structure, and properties of photopolymerizations. Work includes the following types of studies: characterization of the photochemical processes by which polymerizations may be initiated; kinetic characterization of cationic photopolymerization; development of methods for photopolymerization of thick polymers and composites; development of photopolymerization systems based upon agricultural feedstocks; new methods for monitoring high-speed photopolymerization reactions; nanostructured materials through photopolymerization; biomedical devices formed by photopolymerization; and influence of order on photopolymerization reactions.

Master of Science

The Master of Science in chemical and biochemical engineering requires a minimum of 30 s.h. of graduate credit, with or without thesis. All M.S. students must earn at least 24 s.h. in approved graduate-level course work; courses numbered below 100 may not be used to satisfy this requirement. Thesis students earn 6 s.h. in 052:199 M.S. Thesis Research: Chemical and Biochemical Engineering. Nonthesis students earn 6 s.h. in additional approved course work and must complete and pass a final written exam on the basic core material.

M.S. students must maintain a graduate g.p.a. of at least 3.00. Each student must pass a final M.S. examination.

There is no foreign language requirement.

Graduate students who receive assistantships, fellowships, or other financial support awarded with the understanding that they will pursue an advanced degree with thesis may not elect the nonthesis option.

Graduate students in the nonthesis program may petition for entry into the thesis program or the Ph.D. program by requesting a change of status through the Graduate College. The request is reviewed by the graduate admissions committee. If approved by the committee, it is forwarded to the chemical and biochemical engineering faculty for final approval. Students then are assigned to research advisors as though they were newly admitted graduate students. For a detailed description of program requirements, see the Department of Chemical and Biochemical Engineering web site.

Doctor of Philosophy

The Doctor of Philosophy in chemical and biochemical engineering requires a minimum of 72 s.h. of graduate credit. However, the degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours. Candidates usually are expected to have completed three academic years in residence, or two years if they already hold a recognized master's degree.

All candidates must complete a core course requirement, which consists of a course in transport phenomena, a course in reaction engineering, a course on proposal writing, and a thermodynamics course, as well as six additional courses (total of 30 s.h.).

Ph.D. candidates must maintain a graduate g.p.a. of at least 3.25.

All doctoral students are required to satisfy a qualifying requirement and pass a comprehensive examination before they can become candidates for the degree. The Ph.D. comprehensive examination is the presentation and defense of the candidate's Ph.D. research proposal. These examinations are arranged by members of the examining committee and may be repeated at the committee's discretion. Comprehensive examination policies are published in the Manual of Rules and Regulations of the Graduate College; see Graduate College in the Catalog. There is no foreign language requirement. A final examination, which is a defense of the thesis, completes the doctoral program. For a detailed description of program requirements, visit the Department of Chemical and Biochemical Engineering web site.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants should have a B.S. in chemical engineering or related discipline, with satisfactory grades, from a recognized college or university in the United States, and a g.p.a. of at least 2.80. Students who do not meet these requirements may be granted conditional admission, with the department chair's approval. Graduates of non-U.S. universities may be accepted, depending on evaluation of their records.

Applicants must submit their verbal and quantitative scores on the Graduate Record Examination (GRE) General Test with their applications.

Graduate courses in chemical and biochemical engineering are designed for students who have an undergraduate background in chemical engineering. Exceptional students from other areas also may apply for admission to the M.S. or the Ph.D. program in chemical and biochemical engineering. If admitted, they may be required to take specific undergraduate courses to prepare them for graduate course work.
Financial Support

A number of fellowships, assistantships, and scholarships are awarded on a competitive basis to graduate students who qualify.

Graduate students have the opportunity to receive interdisciplinary research training in several fellowship programs administered through the Center for Biocatalysis and Bioprocessing (CBB). The program provides research training in areas that combine basic and applied research. Each year the center offers fellowships to doctoral students in biotechnology. These are funded by grants from the National Institute of General Medical Sciences, National Institutes of Health (NIH), National Science Foundation (NSF), and the CBB with funding from the State of Iowa. Through these programs, chemical and biochemical engineering students interact with students and faculty members from biochemistry, biology, chemistry, civil and environmental engineering, medicinal and natural products chemistry, and microbiology.

Facilities and Laboratories

Undergraduate Core

MATERIALS SCIENCE LABORATORY

The Materials Science Laboratory is equipped with optical microscopes and facilities for metallographic preparation. Mechanical tensile testing instruments, heat treatment and sintering furnaces, and hardness testing machines also are available. Teaching aids include metallography specimen kits and crystallography packages.

Required Undergraduate Laboratories

CHEMICAL ENGINEERING LABORATORY

The Chemical Engineering Laboratory provides instruction for undergraduate students. It is equipped for experimentation in transport phenomena, heat transfer, fluid flow, chemical engineering unit operations, and reaction kinetics and catalysis. The laboratory includes pilot plant equipment, such as a distillation column, wiped film evaporator, shell-and-tube heat exchanger, jacketed kettle, and agitated extractor. Other equipment includes an advanced reactive system screening tool, concentric tube heat exchanger, reciprocating plate extractor, membrane gas separator, and a tangential flow filtration system. Analytical equipment includes gas chromatographs, UV/visible spectrophotometers, and high-performance liquid chromatography.

The laboratory is continuously updated to reflect advances at the forefront of chemical engineering technology. Additionally, a wide array of small equipment is available to support laboratory projects and demonstrations in chemical engineering courses and for use by students performing independent investigations.

CHEMICAL PROCESS SAFETY LABORATORY

The Chemical Process Safety Laboratory is an integral part of 052:187 Chemical Process Safety. It is equipped with two flash-point testers, an advanced reactive system screening tool (ARSST), a flammability limits tester, a Hartmann tube, a Van de Graaff generator, two high impedance electrometers, a field meter, a Faraday cage, and relief sizing software. This equipment is used in a series of experiments to demonstrate the principles of flammability, reactivity, explosions, relief valve sizing, and electrostatics relevant to industry.

PROCESS CONTROL LABORATORY

The Process Control Laboratory is a modern, computer-based instructional laboratory that is integral to 052:185 Process Dynamics and Control in Design. The laboratory consists of computer control of a shell-and-tube heat exchanger, and a level-and-flow control process rig with state-of-the art industrial control interfaces.

The Computer Control Laboratory offers an ensemble of learning experiences with the same equipment.

Additional laboratories provide instruction in the use of process simulators that provide analogies and better insight into the control process. Topics include determination of the gain and time constants for single-capacitance systems; determination of gain, time constant, and damping factor of second-order processes; determination of open-loop and closed-loop response to step-and-ramp changes in input for single-capacitance and multicapacitance processes; approximations of multicapacitance systems as first-order and second-order processes with dead time; analysis of instrumentation characteristics and transfer functions; tuning and optimization of feedback control parameters (P, PI, PID); system identification through frequency response methods; and determination of system stability.

Experimental arrangements in the laboratory are simple enough in design to be easily understood, yet complicated
enough to help students appreciate system characteristics inherent in industrial processes (e.g., large time lags, error in parameter estimation).

### Graduate Facilities and Laboratories

The department offers a wide variety of facilities to support and develop research activities.

#### AIR POLLUTION COMPUTATIONAL, FIELD, AND LABORATORY STUDIES

The department maintains extensive facilities for computational, field, and laboratory studies of air pollution, carbon cycle gases, aerosols, and nanoparticles at the Center for Global and Regional Environmental Research (CGRER). The center occupies 5,000 square feet of laboratory and office space on the fourth floor of the Iowa Advanced Technology Laboratories.

CGRER houses one R2 ImmersaDesk Portable Large Scale Visualization System and is linked on campus to two more R2 ImmersaDesk units.

The center's computer laboratory for environmental and spatial data analysis provides numerous Windows and UNIX workstations, sophisticated software packages, and workstations and a file server necessary to run intensive visualization programs. The network backbone is University supported with high-speed wireless throughout. A variety of digital environmental databases and an extensive library of documentation and related references are available. There are 4 Beowulf Linux clusters on site and Linux clusters of 4, 16, 18, and 20 nodes for large computations and data assimilation. CGRER retains 15 TB of redundant storage and 50 TB of total storage; local storage space is scalable and expandable. A variety of software packages and programming languages are available for data analysis and display, including Arc/Info, Arcview, NCAR Graphics, Matlab, S-Plus, and Vis5d, as well as geographical information software. The ESRI software suite is part of a University-wide site license.

Laboratory and field equipment includes aerosol samplers, including scanning mobility particles sizers for aerosols from 3 nm to 1 micron with time resolution to 30 seconds; aerosol particle sizers for aerodynamic measurements of in situ particles with time resolution to 1 second; and varied condensation particle counters for measuring total particle counts. Several hygroscopic tandem differential mobility analyzers are used, as well as varied aerosol generation devices and unique aerosol inlets for RH and temperature modification and control. Cloud droplet number can be measured in the lab or in the field using a Droplet Measurement Technologies cloud condensation nuclei detector. Advanced computer control of instruments is available through Labview.

Selected instruments are field deployable in a custom air conditioned trailer. Through collaboration with the IIHR–Hydroscience & Engineering, access to micrometeorology sensors, 1-D and 2-D elastic and Raman LIDAR, and gas sensors is available, including multichannel ammonia monitors.

#### BIOCHEMICAL ENGINEERING

Biochemical engineering laboratories provide facilities for preparation of biological media and cultivation of organisms as well as for separation and analysis of biomolecules. This equipment includes biological incubators and floor incubator shakers, agitated and airlift bioreactors, light microscopes, autoclaves, Vi-Cell cell counter, thermocycler for PCR amplification of DNA, high- and low-speed centrifuges, UV-Vis spectrophotometers, a lyophilizer, biological safety cabinets, and an anaerobic glove box. Phase-contrast and epifluorescence microscopes, gel electrophoresis systems, gas chromatography units with flame ionization and electron capture detectors, and several high-performance liquid chromatography systems with refractive index and photodiode array detectors are available for characterization of microorganisms and constituent biomolecules. In addition, the lab has multiple extremophile cultivation systems including a high-pressure (0.1-100 MPa) cell cultivation system, several continuous cultivation systems, and high-temperature oil bath shakers for physiological studies of extremophilic microbes.

Through collaborative research agreements, graduate students also have access to specialized facilities for electron microscopy, protein structure, and recombinant DNA research; the Flow Cytometry Facility; the High Resolution Mass Spectrometry Facility; the Large-Scale Fermentation Facility; and the Tissue Culture/Hybridoma Core Facility.

#### BIOMEDICAL ENGINEERING

The biomedical engineering laboratories house particle technology equipment including microemulsion equipment for drug encapsulation, sonicators, benchtop scale spray dryers, laser diffraction particle sizer, zetapotentimeter; DNA preparation equipment, gel electrophoresis apparatus; interfacial stress rheometer, surface tensiometer, UV-Vis/fluorescent plate reader, high-performance liquid chromatograph, luminometer, lyophilizer, custom-built simulated cough machine, microscopes, incubators, wet chemistry equipment, rotary shakers, incubated plate shakers, autoclave, centrifuges, and laboratory computers. Cell culture and bacterial culture facilities are housed adjacent to the laboratories.

Graduate students also have access to core research facilities including the Central Microscopy Research Facility, Flow Cytometry Facility, DNA Facility, Electron Spin Resonance Facility, Tissue Culture/Hybridoma Core Facility,
Nuclear Magnetic Resonance Facility, High Resolution Mass Spectrometry Facility, Center for Gene Therapy of Cystic Fibrosis and Other Genetic Diseases, Nuclear Magnetic Resonance Facility, and Statistical Consulting Center.

COMPUTER FACILITIES

The departmental computer facilities contain a variety of graphics workstations, printers, and microcomputers. The department is supported by the college's Computer Systems Support (CSS). CSS maintains a large network of high performance UNIX and Windows XP workstations along with extensive commercial and public domain software. The department also has access to the University's central research facility in high-speed vector computation. This facility has SGI Power Challenger minisupercomputers and provides nodes for external links for access to supercomputers.

FUNDAMENTALS AND APPLICATIONS OF PHOTOPOLYMERIZATION

The Photopolymerization Center was established to advance fundamental understanding of the kinetics and mechanisms of photopolymerizations. To this end, the center provides unique opportunities for collaborations by industrial and academic investigators to explore photopolymerization processes and develop novel applications based on photopolymerizations.

The center provides equipment and instrumentation for the characterization of photopolymerization systems on the molecular, microscopic, and macroscopic levels. Center researchers pursue understanding of fundamental photophysical and photochemical processes involved in the photoinitiation reaction; characterization of high-speed propagation and termination kinetics that lead to the polymer structure; and evaluation of material properties through the course of the photopolymerization reaction. Both radical and cationic photopolymerizations are studied with state-of-the-art experimental techniques to elucidate the complex chemical and physical mechanisms that control the initiation, propagation, and termination of the active centers.

Chemical and Biochemical Engineering Courses

General Topics

052:000 Cooperative Education Training Assignment: Chemical Engineering

Chemical engineering students participating in the Cooperative Education Program register for this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of co-op faculty advisor.

052:002 Half-time Cooperative Education Training Assignment: Chemical Engineering

Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.

052:029 First-Year Seminar

Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

052:030 Energy and Society

History of energy development and use throughout the world; how energy has affected the development of human societies; societal impact of engineering advances; current state of energy consumption worldwide, including distribution of energy sources, global variations in consumption, advantages and disadvantages of current energy sources; role of fossil fuel consumption in global climate change, potential scenarios for the future of energy.

052:041 Process Calculations

Fundamental principles of chemical process analysis, including material and energy balances for single-unit and multiple-unit processes, analysis of reactive and nonreactive systems, introduction to equations of state, thermodynamics of multiphase systems. Prerequisite: 22M:031 or equivalent.

052:090 CBE Departmental Seminar

Introduction to the profession and the department; presentations by guest speakers, visits to laboratories and industries.

052:091 Professional Seminar: Chemical Engineering

Professional aspects of chemical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisites: 052:041 and sophomore standing.
052:092 Senior Enriching Activities Seminar
Aspects of chemical engineering education, including multidisciplinary team skills, understanding the impact of engineering practice locally and globally. Corequisite: 052:186.

052:098 Individual Investigations: Chemical Engineering
Individual projects for chemical engineering undergraduate students, such as laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of faculty advisor.

052:103 Chemical Engineering Thermodynamics
Applications of thermodynamic principles to chemical and physical processes; prediction of material properties; phase and chemical equilibria applied to mixtures and reacting systems. Prerequisite: 059:009. Corequisite: 052:041.

052:105 Chemical Reaction Engineering
Application of chemical reaction kinetics to design of chemical reactors: batch reactors, mixed flow reactors, plug flow reactors; reversible and irreversible single reactions; parallel, series, and mixed reactions; temperature and pressure effects on reactor design; heterogeneous catalysis; transport in porous catalysts. Prerequisite: 052:161.

052:107 Sustainable Systems
New and emerging concepts in sustainable systems design and assessment. Same as 053:107.

052:109 CEBC Colloquium
Sustainable development issues addressed by guest speakers from chemical industries; process economics, environmental impact assessment.

052:117 Intermediate Thermodynamics
Fundamental principles of thermodynamics as applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Prerequisite: 052:103 or 058:040 or graduate standing. Same as 058:140.

052:118 Mathematical Methods in Engineering

052:171 Thermodynamics/Transport Laboratory

052:172 Chemical Reaction Engineering/Separations Laboratory
Experimental design, data collection techniques, report writing, oral presentations; laboratory investigations of chemical reaction engineering and separations; experiments with plug flow and batch reactors, distillation, evaporation, membrane separation. Prerequisites: 052:161 and 052:171. Corequisite: 052:105.

052:192 Special Topics
Research techniques for graduate students in chemical and biochemical engineering. Prerequisite: graduate standing or consent of instructor.

052:195 Contemporary Topics: Chemical and Biochemical Engineering
Research techniques for graduate students in chemical and biochemical engineering. Prerequisite: graduate standing or consent of instructor.

052:196 Photopolymerization Topics
Seminars presented by faculty members, research assistants, students.

052:215 Introduction to Literature Review and Proposal Writing

Tools for reviewing literature, skills for critical reading of publications, training in successful proposal writing; experience drafting a proposal that can be used as a starting point for the Ph.D. comprehensive. Prerequisite: consent of instructor.

Biochemical Engineering

052:108 Introduction to Biochemical Engineering
Biochemistry, cellular biology, recombinant DNA and hybridoma technologies; emphasis on engineering aspects of biotechnology, including enzyme kinetics, cell growth kinetics, transport phenomena in bioreactors, bioreactor design, bioseparations, formulation and sterilization of growth media, commercial applications of biotechnology. Prerequisite: 052:105.

052:181 Bioseparations
Unit operations used to isolate and purify biologically-derived chemicals, including flocculation, filtration, centrifugation, extraction, adsorption, chromatography, precipitation, crystallization, electrophoresis and cell disruption for intracellular product recovery.

052:223 Introduction to Biocatalysis
Applications of biological catalysis in varied industries; potential of biological catalysis to address future challenges in science and engineering.

052:225 Biotechnology of Extremophiles
Evolution and engineering of biocatalysis under extreme conditions; physiological, kinetic, and molecular behavior of systems that perform under extremes of temperature, pH, salinity, pressure, solvent concentrations.

052:226 Engineering Aspects of Animal Cell Culture
Applications of animal cell culture (insect and mammalian) in biochemical engineering, with emphasis on recombinant protein synthesis; special considerations of animal cell cultures (e.g., sensitivity to hydrodynamic stress), scale-up of attachment-dependent and attachment-independent cell cultures, medium development, hybridoma cultures, protein processing in animal cells. Prerequisite: 052:108.

052:227 Tissue Engineering
Introduction to tissue engineering; scaffolds, fundamentals, principles. Same as 046:290, 051:175.

052:275 Perspectives in Biocatalysis

Environmental Engineering

052:133 Engineering Analysis of Alternative Energy Systems
Engineering and sustainability analyses of conventional and emerging energy technologies; alternative energy sources, including biomass, wind, solar, geothermal; alternative energy carriers (transportation fuels), including varied biofuels, hydrogen, natural gas, ammonia. Prerequisite: 059:009.

052:231 Environmental Chemistry I
Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, and oxidation-reduction reactions; organic nomenclature. Prerequisite: 004:012. Same as 053:152.

052:235 Air Pollution Control Technology
Sources, environmental and health impacts, regulations, modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisite: 053:050 or consent of instructor. Same as 053:159.

052:236 Atmospheric Chemistry and Physics
Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources, removal processes. Corequisite: 052:105. Same as 053:161.
052:237 Green Chemical and Energy Technologies 3 s.h.
Strategies for pollution prevention for chemical processes studied at the macroscale (industrial sector), the mesoscale (unit operations), and the microscale (molecular level); case studies. Corequisites: 052:105 and 052:187.

Transport Phenomena

052:151 Engineering Flow and Heat Exchange 3 s.h.
Fundamentals of fluid flow and heat transfer; fluid rheology, boundary layer theory, potential flow, dimensional analysis, laminar and turbulent flow in pipes, flow through packed beds, fluidized beds, pumps, flow measurement, filtration, heat exchanger design, and conductive, convective, and radiative heat transfer. Corequisite: 052:041.

052:161 Mass Transfer and Separations 3 s.h.
Mechanisms of diffusional mass transfer; solution of industrial problems, including the design of distillation, extraction, absorption, adsorption, drying, membrane processes; mechanical separations. Prerequisites: 052:103 and 052:151.

052:217 Transport Phenomena I 3 s.h.
Unified treatment of momentum, mass, energy transport in chemical engineering problems; use of vector and tensor notations in expressing equations of continuity, motion, energy.

052:272 Diffusive Transport 3 s.h.
Diffusive transport of heat, mass, and momentum; phenomenological laws and analogies; analytical and numerical solution techniques; inverse heat conduction; multiphase and multicomponent systems. Prerequisite: 058:145. Same as 058:245.

Materials Science

052:140 Polymer Fundamentals 1 s.h.
Basic knowledge of polymers required as a foundation for other UI courses on polymers: basic polymer terminology, polymer groups, polymerization mechanisms, molecular weight determination. Five weeks. Same as 051:168.

052:141 Polymer Science and Technology 3 s.h.
Uses, properties of industrially important polymeric materials; polymer chemistry, polymer structure, characterization, polymer processing. Prerequisite: 004:122. Corequisite: 052:105.

Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Prerequisites: a physical science course and consent of instructor. Same as 012:156, 060:156.

052:242 Polymer Chemistry 3 s.h.
Monomer reactivity and polymerization reactions; step, radical, ionic, and ring-opening polymerizations. Prerequisite: 004:122.

Process Dynamics, Design, Analysis

052:176 Chemical Engineering Experiential Design I 1 s.h.
Design team project integrating knowledge gained from engineering, basic science, humanities, and social science courses; first of a two-semester sequence for Program for Enhanced Design Experience.

052:177 Chemical Engineering Experiential Design II 2 s.h.
Design team project integrating knowledge gained from engineering, basic science, humanities, and social science courses; second of a two-semester sequence for Program for Enhanced Design Experience.

052:184 Chemical Engineering Process Design I 2 s.h.
Engineering economics of process evaluation, including time value of money and bases for cost estimation; preliminary
design of chemical process plants using computer-aided engineering. Prerequisites: 052:105 and 052:161.

052:185 Process Dynamics and Control in Design 3 s.h.
Theory and application of process dynamics to the design of chemical process control systems; mathematical models
of unit operations, transfer functions, feedback and feed-forward control, stability, instrumentation, digital control
systems; computer methods, including simulation and commercial software use; laboratory focus on process analysis
and design. Prerequisite: 052:105.

052:186 Chemical Engineering Process Design II 3 s.h.
Capstone chemical engineering course; design and optimization of chemical process plants; application of process
calculations, thermodynamics, kinetics, process synthesis, energy efficiency in separations, heat-exchanger network
synthesis, physical property estimation, safety, computer-aided design, unit operations theory, process control, and
economics. Prerequisite: 052:184.

052:187 Chemical Process Safety 3 s.h.
Application of transport phenomena, thermodynamics, chemical kinetics to study of safety, health, loss prevention;
government regulations, toxicology/industrial hygiene, relief sizing, runaway reactions, toxic release and dispersion
models, source models, fires and explosions, risk assessment, hazard identification, case studies and accident
investigation, incorporation of safety into design; laboratory experiments. Prerequisite: 052:161. Corequisite: 052:105.

Graduate Seminars, Advanced Topics, Research

052:191 Seminar in Chemical and Biochemical Engineering 1 s.h.
Presentation and discussion of recent advances and research in chemical and biochemical engineering by guest
lecturers, faculty, students. Prerequisite: graduate standing.

052:198 Individual Investigations: Chemical and Biochemical Engineering arr.
Individual projects for chemical and biochemical engineering graduate students; may include laboratory study,
engineering design project, analysis and simulation of an engineering system, computer software development,
research. Prerequisites: graduate standing and consent of supervising faculty advisor.

052:199 M.S. Thesis Research: Chemical and Biochemical Engineering arr.
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with
thesis in chemical and biochemical engineering. Prerequisites: graduate standing and consent of faculty advisor.

052:299 Research: Chemical and Biochemical Engineering Ph.D. Dissertation arr.
Experimental and/or analytical investigation of an approved topic for Ph.D. in chemical and biochemical engineering.
Prerequisite: consent of advisor.
Civil and Environmental Engineering

Chair: Keri Hornbuckle

Professors emeriti: Dan E. Branson, Forrest M. Holly Jr., Subhash C. Jain, Wayne L. Paulson

Adjunct professors: Konstantine P. Georgakakos, Tatsuki Nakato


Adjunct associate professors: Louis A. Licht, Marian Muste, John Nestler

Assistant professors: George Constantinescu, Paul Hanley, Walter Illman, Tim Mattes

Adjunct assistant professors: Craig Just, Ken Lloyd, Doug Schnoebelen

Adjunct lecturer: Don Guckert

Undergraduate degree: B.S.E. in Civil Engineering
Graduate degrees: M.S., Ph.D. in Civil and Environmental Engineering

Web site: http://www.cee.engineering.uiowa.edu

Civil engineering is one of the three largest fields of engineering. It traditionally has been concerned with infrastructure facilities that are both large in scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railways, harbors, airports, seaports, and even spaceports; large-scale structures and office buildings that provide enclosed working and living space; environmental and hydraulic systems that provide clean water and air, including filtration plants and distribution systems for municipal and industrial water supplies, wastewater treatment plants, dams, levees, and irrigation systems.

Growth areas of civil and environmental engineering include infrastructure development, construction management, computer-aided design, hazardous waste management, and engineered environmental systems. In the future, civil and environmental engineers will be called upon to design structures for earth and outer space, prevent erosion and sedimentation of our rivers, predict effects of global climate change on the environment, provide modern and efficient transportation systems, and ensure the quality of our air and our surface waters and groundwater.

In planning and design, civil and environmental engineers work with other engineers, architects, landscape architects, planners, economists, financiers, sociologists, lawyers, and other specialists as members of the design team. Some civil engineers work in engineering offices; others may be called upon to construct or supervise outdoor projects they have designed. These field assignments, many of which are in remote and fascinating parts of the world, are particularly appealing to many civil and environmental engineers. There also is significant potential for entrepreneurial work by civil and environmental engineers as they start their own companies.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in civil engineering. The program's objective is to provide a well-rounded, superior engineering education that:

- provides students with appropriate proficiency in the civil engineering subdisciplines of structures and materials, water-resources engineering, transportation systems, and environmental engineering;
- ensures that students are knowledgeable about the importance, procedures, and benefits of professional licensure and continuing education;
- offers design experiences that include projects in the curriculum that are offered by and guided in part by the professional community; and
- provides research opportunities to undergraduate students through the department's connections with on-campus research entities including IIHR--Hydroscience and Engineering, the Center for Global and Regional Environmental Research, the Public Policy Center, the Center for Computer Aided Design, the Center for Biocatalysis and Bioprocessing, and the Center for Health Effects of Environmental Contamination.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. Students majoring in civil engineering choose one of two subtracks: civil, which provides breadth in the discipline; or environmental, which provides for a concentration.

The B.S.E. curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005 Engineering Problem Solving I, 059:006 Engineering Problem Solving II, and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. For information on B.S.E. curriculum stems and common course requirements, see Bachelor of Science in Engineering in the College of Engineering section of the Catalog.

Subtrack requirements are the same for the first semester of the first year but are different beginning with the second semester.

Students must select elective focus area courses according to guidelines established by the Department of Civil and
Environmental Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

**FIRST YEAR**

First Semester

- 004:011 Principles of Chemistry I 4 s.h.
- 010:003 Accelerated Rhetoric 4 s.h.
- 059:005 Engineering Problem Solving I 3 s.h.
- 059:090 First-Year Engineering Seminar 1 s.h.

Civil Subtrack

**FIRST YEAR**

Second Semester

- 22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
- 029:081 Introductory Physics I 4 s.h.
- 059:006 Engineering Problem Solving II 3 s.h.
- General education component course 3 s.h.

**SECOND YEAR**

First Semester

- 029:082 Introductory Physics II 3-4 s.h.
- 053:015 Civil and Environmental Engineering Practice 2 s.h.
- 059:007 Engineering Fundamentals I: Statics 2 s.h.
- 059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
- 059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.

Second Semester

- 22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
- 053:020 CEE Sophomore Seminar 0 s.h.
- 053:050 Natural Environmental Systems 3 s.h.
- 053:105 Geology for Engineers 3 s.h.
- 057:010 Dynamics 3 s.h.
- 057:019 Mechanics of Deformable Bodies 3 s.h.

**THIRD YEAR**

First Semester

- 053:030 Soil Mechanics 3 s.h.
- 053:033 Principles of Structural Engineering 3 s.h.
- 053:063 Principles of Transportation Engineering 3 s.h.
- 053:091 Professional Seminar: Civil Engineering 0 s.h.
- 057:020 Fluid Mechanics 4 s.h.
- Elective focus area course 3 s.h.
Second Semester

053:055 Principles of Environmental Engineering 4 s.h.
053:071 Principles of Hydraulics and Hydrology 3 s.h.
053:086 Civil Engineering Materials 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
Elective focus area course 3 s.h.
General Education component course 3 s.h.

FOURTH YEAR

First Semester

053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Two elective focus area courses 6 s.h.

Two of these:
053:136 Design of Concrete Structures 3 s.h.
053:157 Environmental Engineering Design 3 s.h.
053:174 Water Resource Design 3 s.h.

Second Semester

053:084 Project Design and Management in Civil Engineering 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Three elective focus area courses 9 s.h.

Environmental Subtrack

FIRST YEAR

Second Semester

004:012 Principles of Chemistry II 4 s.h.
22M:032 Engineering Mathematics II: Multivariable Calculus 4 s.h.
22M:033 Engineering Mathematics III: Matrix Algebra 2 s.h.
029:081 Introductory Physics I 4 s.h.
059:006 Engineering Problem Solving II 3 s.h.

SECOND YEAR

First Semester

22M:034 Engineering Mathematics IV: Differential Equations 3 s.h.
053:015 Civil and Environmental Engineering Practice 2 s.h.
059:007 Engineering Fundamentals I: Statics 2 s.h.
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.
General education component course 3 s.h.

Second Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
THIRD YEAR

First Semester

053:030 Soil Mechanics 3 s.h.
053:033 Principles of Structural Engineering 3 s.h.
053:063 Principles of Transportation Engineering 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
053:152 Environmental Chemistry I 3 s.h.
057:020 Fluid Mechanics 4 s.h.

Second Semester

053:055 Principles of Environmental Engineering 4 s.h.
053:071 Principles of Hydraulics and Hydrology 3 s.h.
053:086 Civil Engineering Materials 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
Elective focus area course 3 s.h.
General education component course 3 s.h.

FOURTH YEAR

First Semester

053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Two elective focus area courses 6 s.h.

Two of these:

053:134 Design of Steel Structures 3 s.h.
053:136 Design of Concrete Structures 3 s.h.
053:157 Environmental Engineering Design 3 s.h.
053:162 Design of Transportation Systems 3 s.h.
053:174 Water Resource Design 3 s.h.

Second Semester

053:084 Project Design and Management in Civil Engineering 3 s.h.
053:091 Professional Seminar: Civil Engineering 0 s.h.
General education component course 3 s.h.
Three elective focus area courses 9 s.h.

Elective Focus Area

Civil engineering students may choose from several standard elective focus areas developed by the department, a focus area offered jointly with another engineering department, or an individual focus area tailored to the student's interests.

Standard elective focus areas are offered in environmental engineering; hydraulics and water resources; structures, mechanics, and materials; transportation; urban and regional planning; and in the broad field of civil engineering. Elective focus areas offered jointly with other engineering departments cut across programs (e.g., computer-aided...
engineering, design and optimization, environmental processes).

Civil engineering students must take one general education component course related to their elective focus area.

For more detailed information about elective focus areas, see "Bachelor of Science in Engineering"/"Elective Focus Area" in the College of Engineering section of the Catalog. For a list of standard elective focus area options and guidelines for tailored elective focus areas in civil engineering, see the Department of Civil and Environmental Engineering web site.

**Joint B.S.E./M.S.**

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for civil engineering undergraduates who intend to earn an M.S. in civil and environmental engineering. B.S.E./M.S. students may attend the departmental graduate seminar and work on a master's thesis or research project while still undergraduates. They may count a limited amount of course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h. and must have a cumulative g.p.a. of at least 3.25. They must submit an application form to the Department of Civil and Environmental Engineering, along with a letter stating their proposed area of specialization and the name of a department faculty member willing to be their primary M.S. advisor. They also must identify a faculty sponsor who can guide them from at least the second semester of their senior year until they complete the M.S.

Applications are due by March 1.

**Graduate Programs**

The Department of Civil and Environmental Engineering offers a Master of Science and a Doctor of Philosophy. Both programs prepare students for professional careers and further study. The principal concentration areas are environmental engineering and science; global and regional environmental research; hydraulics, hydrology, and water resources; structures, mechanics, and materials; and transportation and infrastructure systems.

The department also participates in an interdisciplinary doctoral program offered by the Graduate College; see Applied Mathematical and Computational Sciences in the Catalog.

**Research and Study Areas**

**ENVIRONMENTAL ENGINEERING AND SCIENCE**

The environmental engineering and science curriculum provides a comprehensive base of course work and research in the areas of air- and water-quality management, environmental chemistry and microbiology, natural systems modeling, and processes for water supply, pollution control, and solid and hazardous waste management. Interdisciplinary specialization and study are conducted with programs including IIHR--Hydroscience & Engineering, the Center for Global and Regional Environmental Research, the Center for Health Effects of Environmental Contamination, the Hazardous Substances Research Center, the Center for Biocatalysis and Bioprocessing; the Departments of Chemical and Biochemical Engineering, Geography, Geoscience, Microbiology, Occupational and Environmental Health; and the Urban and Regional Planning Program. New areas of interdisciplinary focus include groundwater contamination, biotechnology, global climate change, and hazardous substances.

**GLOBAL AND REGIONAL ENVIRONMENTAL RESEARCH**

The department has an active interdisciplinary research program in the environmental areas of air pollution, water pollution, groundwater remediation, global atmospheric change, and hazardous waste management. Particular emphasis is placed on the microbiology, chemistry, and physics of local, regional, and global air, soil, and water quality problems. Research includes sophisticated environmental quality analysis, high-speed computing, and detailed sensitivity analysis. The Department of Chemical and Biochemical Engineering and the Center for Global and Regional Environmental Research also collaborate in these endeavors.

**HYDRAULICS, HYDROLOGY, AND WATER RESOURCES**

The hydraulics, hydrology, and water resources curriculum is associated with IIHR--Hydroscience & Engineering, a world-renowned research institute. Senior staff members of the institute are professors in the program; they devote about half of their time to teaching.

IIHR offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real-world problems. Considerable attention is given to the use of computers in mathematical modeling and in data
acquisition and processing. IIHR high-speed computer facilities and advanced graphics and communication software complement the hydrology, hydraulics, and water resources curriculum.

**STRUCTURES, MECHANICS, AND MATERIALS**

The structures, mechanics, and materials curriculum is designed for students who wish to gain knowledge and skill in the mechanics of solids and structures that they can apply to civil infrastructure systems and other fields. The program concentrates on developing appropriate methodologies for tackling broad, complex issues related to civil infrastructure systems, and on educating engineers in the implementation and application of methodologies to actual engineering projects. Faculty members have expertise in structural engineering, design optimization, solid mechanics, and computational methods.

**TRANSPORTATION AND INFRASTRUCTURE SYSTEMS**

The transportation and infrastructure systems curriculum aims at graduating students interested in developing specialized knowledge and skills applicable to diverse set of issues associated with transportation. Faculty members have expertise in traffic engineering, infrastructure management systems, pavement engineering, advanced construction materials, dynamic load and pavement simulation, optimal design, winter highway maintenance, real-time simulation, human factors, intelligent sensors, nondestructive testing, transportation planning, and travel demand modeling.

**Master of Science**

The Master of Science in civil and environmental engineering requires a minimum of 30 s.h. of graduate credit, with or without thesis. The program enables students to concentrate in one or more areas of their choice. Graduates are placed in advanced technical positions in industry, consulting firms, or government, or they may continue their graduate study. Current and projected demand for M.S. graduates is excellent.

Students who choose the thesis program earn up to 6 s.h. for the thesis. Nonthesis students in the environmental engineering and science curriculum earn an additional 3 s.h.

With the approval of their advisor, students develop a study plan that satisfies the requirements of their chosen curriculum.

All M.S. students must have a g.p.a. of at least 3.00, pass an oral examination, and in some program options, a written examination.

**Doctor of Philosophy**

The Doctor of Philosophy in civil and environmental engineering requires a minimum of 72 s.h. of graduate credit; the semester-hour requirements for some curriculum areas are higher. The doctoral degree is granted primarily on the basis of achievement rather than on a prescribed course of study. Students usually need at least three years of full-time graduate study to complete the degree. One year is devoted to the preparation of a dissertation that contributes to knowledge in the field. In some specialty areas, a qualifying examination may be required.

All doctoral students are required to pass a written and oral comprehensive examination before being formally admitted to candidacy for the degree. This examination usually is taken after all required course work has been completed.

The program culminates in a final examination, in which candidates must successfully defend their dissertation.

Ph.D. students must maintain a g.p.a. of at least 3.00 throughout the program.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Each of the program's curricula is flexible; students may be admitted from all disciplines of engineering as well as from the mathematical and basic sciences.

Applicants to the M.S. program should have a cumulative undergraduate g.p.a. of at least 3.00. Ph.D. applicants should have a graduate g.p.a. of at least 3.00. Applicants whose grade-point average is slightly lower should contact the department.

Applicants should have a combined verbal and quantitative score of at least 1100 on the Graduate Record Examination (GRE) General Test. Lower scores are considered with other evidence of academic promise (recommendation letters, grade-point average). GRE General Test scores also are used in financial aid decisions.
Financial Support

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships. Selection of recipients usually is based on scholastic achievement and research interest.

Facilities and Laboratories

Undergraduate Core

The first-year engineering course 059:005 Engineering Problem Solving I includes an introduction to the college's Computer Systems Support (CSS). Students in the course use computer-aided design tools on engineering work stations. All civil engineering courses require knowledge of personal computers and contain significant computer content.

For information about laboratories affiliated with core courses coordinated by other engineering departments, see the Catalog section for each of the departments.

Required and Elective Undergraduate Laboratories

053:015 Civil and Environmental Engineering Practice (2 s.h.), 053:063 Principles of Transportation Engineering (3 s.h.), and 053:084 Project Design and Management in Civil Engineering (3 s.h.): use of a state-of-the-art laboratory for computer-aided design and drawing.

053:030 Soil Mechanics (3 s.h.): equipped for determining the classification, seepage characteristics, stress-strain properties, and strength of soils.

053:050 Natural Environmental Systems (3 s.h.): environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting.

053:055 Principles of Environmental Engineering (4 s.h.): conducted at the University Water Treatment Plant and Iowa City Wastewater Plant for demonstrations of unit operations and processes of water and wastewater treatment, and applications in environmental chemistry and microbiology.

053:071 Principles of Hydraulics and Hydrology (3 s.h.): hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, with laboratory.

053:153 Environmental Chemistry Laboratory (3 s.h.): experiments to demonstrate fundamental principles of aquatic chemistry and chemical analyses for characterization of water and wastewater quality, conducted in the Environmental Engineering Laboratories.

053:154 Environmental Microbiology (3 s.h.): typical microorganisms isolated and their physiology and metabolic characteristics studied in the Environmental Engineering Laboratories.

053:156 Physical-Chemical Process Fundamentals (3 s.h.) and 053:151 Biological Treatment Processes (3 s.h.): unit operations, processes studied in bench scale experiments; use of typical process analytical parameters; experiments conducted in the Environmental Engineering Laboratories, University Water Plant, and Iowa City Wastewater Treatment Plant.

Graduate Laboratories

ENVIRONMENTAL ENGINEERING AND SCIENCE LABORATORIES

The Environmental Engineering and Science Laboratories provide state-of-the-art facilities, equipment, and expertise to support both undergraduate and graduate-level instruction and research. The laboratories support research in contaminant fate and transport in various media (air, water, soil, plants, and microbes), drinking water disinfection and distribution, wastewater treatment, geochemical-contaminant interactions, bioremediation, and phytoremediation. They also provide resources for analytical chemistry, electrochemistry, molecular biology, microscopy, computer modeling, and simulated environments on the bench- and pilot-scale levels.

The Environmental Engineering and Science Laboratories are affiliated with the University's Center for Health Effects of Environmental Contamination and its Center for Global and Regional Environmental Research, and with the UI Environmental Health Sciences Research Center, an affiliate of the National Institute of Environmental Health Sciences (NIEHS).

HYDRAULICS, HYDROLOGY, AND WATER RESOURCES LABORATORIES

The teaching and research functions of the department are closely connected to the research activities of IIHR--Hydroscience & Engineering. The institute houses some of the most modern research facilities in the world,
including a 330-foot towing tank, several hydraulic flumes and wind tunnels, an array of field instrumentation for hydrologic experiments, extensive laboratory space for hydraulic modeling, a special low-temperature flow facility for investigation of ice phenomena, state-of-the-art instrumentation for flow measurement and visualization, and comprehensive computational facilities.

Research related to ecohydraulics and the environment takes place at the Lucille A. Carver Mississippi Riverside Environmental Research Station. Located on the Mississippi River near Muscatine, Iowa, the station provides engineers and biological scientists with an ideal facility in which to examine the multifaceted ecohydraulic processes of the upper Mississippi. The 500-square-foot facility is equipped with water-quality laboratories and a seminar room and is operated by IIHR--Hydroscience & Engineering.

STRUCTURES, MECHANICS, AND MATERIALS LABORATORIES

Facilities for computations, materials testing, geotechnical experiments, and small-scale structural testing are available for research and teaching. Faculty, staff, and students in structures, mechanics, and materials (SMM) have access to the computing resources of both Engineering Computer Systems Support and the Center for Computer-Aided Design (CCAD). Both centers continuously update their computing facilities to maintain pace with the rapidly changing field.

A wide range of experimental facilities is available for testing structural materials such as Portland cement concrete, asphalt, metals, timber, and composites. These facilities include several loading frames (purely uniaxial, purely torsional, and axial-torsional) that are available with computer-based control and data collection systems. Facilities for creep testing, triaxial soil testing, and high-cycle fatigue testing are also available. The laboratories have a variety of ovens and other facilities for preparation and treatment of test specimens.

Four well-equipped physical testing laboratories are dedicated to SMM teaching and research: the Civil Materials Laboratory, Soil Mechanics Laboratory, Plasticity Laboratory, and the Asphalt Laboratory. The Civil Materials Laboratory currently has a small-scale single-degree-of-freedom shaker table. Faculty, staff, and students have access to a small-scale six-degree-of-freedom shaker table through CCAD and a 12-camera Vicon motion-capture system.

TRANSPORTATION INFRASTRUCTURE SYSTEMS LABORATORY

The department's Asphalt Laboratory is equipped with a set of SuperPave testing equipment and new Interlaken Simple Performance Testing Equipment, which measures dynamic modulus and dynamic creep of asphalt mixtures. The laboratory's Wirtgen asphalt foaming equipment can be used for mix design of cold in-place recycled asphalt using foamed asphalt; equipment for Marshall mix design, indirect tensile strength test, and volumetric analysis of asphalt mixtures is also available. The laboratory is one of the department's group of laboratories for materials testing the strength behavior of other materials.

Civil and Environmental Engineering Courses

Special Topics

053:000 Cooperative Education Training Assignment: Civil Engineering 0 s.h.
Civil engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record card. Prerequisites: admission to the Cooperative Education Program and consent of faculty advisor.

053:002 Half-time Cooperative Education Training Assignment: Civil and Environmental Engineering 0 s.h.
Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.

053:010 CEE First Year Seminar 0 s.h.
Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty; laboratory visits. Prerequisite: first-year standing.

053:015 Civil and Environmental Engineering Practice 2 s.h.
Concepts of the built environment and the natural environment; infrastructure life cycle; engineering communication (plans, engineering drawings and information systems, computer-aided drafting); field trip to major city.

053:020 CEE Sophomore Seminar 0 s.h.
Introduction to civil and environmental engineering curriculum and profession; presentations by senior undergraduate students, graduate students, faculty; laboratory visits. Prerequisite: sophomore standing.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>053:083</td>
<td>Surveying and Remote Sensing</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Engineering surveying measurements, methods, computations. Prerequisite: 059:005.</td>
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<tr>
<td>053:084</td>
<td>Project Design and Management in Civil Engineering</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Design of civil engineering systems, individual and team design projects oriented toward the solution of local problems, project management, construction management, contracts, budgeting, bidding. Prerequisites: 053:033, 053:050, 053:063, 053:071, and senior standing or consent of instructor.</td>
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<td>053:091</td>
<td>Professional Seminar: Civil Engineering</td>
<td>0 s.h.</td>
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<td>Professional aspects of civil engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Prerequisite: junior standing.</td>
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<tr>
<td>053:098</td>
<td>Individual Investigations: Civil Engineering</td>
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<td></td>
<td>Individual projects for civil engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of faculty advisor.</td>
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<td>053:101</td>
<td>International Business and Infrastructure</td>
<td>3 s.h.</td>
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<td>Differences between international and domestic businesses; how differences in infrastructure in the international environment influence business operations; effects of infrastructure on international commerce and business practices; case studies, site visits.</td>
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<td>053:107</td>
<td>Sustainable Systems</td>
<td>3 s.h.</td>
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<td></td>
<td>New and emerging concepts in sustainable systems design and assessment. Same as 052:107.</td>
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<tr>
<td>053:111</td>
<td>Numerical Calculations</td>
<td>3 s.h.</td>
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<td></td>
<td>Development of algorithms for functional approximations, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:034. Same as 058:111.</td>
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<td>053:112</td>
<td>Engineering Design Optimization</td>
<td>3 s.h.</td>
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<td>Engineering design projects involving modeling, formulation, and analysis using optimization concepts and principles; linear and nonlinear models, optimality conditions, numerical methods. Prerequisites: 22M:033, 059:007, and junior standing. Same as 058:112.</td>
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<td>053:113</td>
<td>Mathematical Methods in Engineering</td>
<td>3 s.h.</td>
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<td>053:115</td>
<td>Computer-Aided Engineering</td>
<td>3 s.h.</td>
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<td>Computational engineering modeling and simulation, geometric modeling, grid generation, finite-element and finite-volume methods, uncertainty analysis, optimization, engineering applications. Prerequisites: 057:019 and 058:052, or equivalent. Same as 058:110.</td>
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<tr>
<td>053:126</td>
<td>International Perspectives: Xicotepec</td>
<td>3 s.h.</td>
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<td></td>
<td>Introduction to providing service to a community in a less developed country; student projects intended to improve community life in Xicotepec. Same as 046:126.</td>
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<td>053:168</td>
<td>Civil Infrastructure</td>
<td>3 s.h.</td>
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<td></td>
<td>Analytical methods for developing Infrastructure Management Systems (IMS); evaluation of infrastructure condition, performance modeling, rehabilitation optimization, development of the IMS; basic concepts of information technology applied in solving civil infrastructure management problems. Prerequisite: 053:015.</td>
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<td>053:182</td>
<td>Statistics for Engineers</td>
<td>3 s.h.</td>
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<td>Application of statistical techniques for evaluation and optimization of engineering designs; use of spreadsheets, statistical software; design and analysis of experiments; regression analysis; system optimization; modeling deterministic and stochastic systems. Prerequisite: 22S:039 or equivalent.</td>
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<tr>
<td>053:210</td>
<td>Developing Professional Service Business</td>
<td>2-3 s.h.</td>
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Use of professional skills and functional knowledge in creating a specialized service business. Same as 06T:210.

053:214 Analytical Methods in Mechanical Systems 3 s.h.
Vector and function spaces; functionals and operators in Hilbert spaces; calculus of variations and functional analysis with application to mechanics; Ritz and Galerkin methods. Prerequisite: 058:113. Same as 058:214.

053:297 Teaching Undergraduate Science and Engineering arr.
Basic skills to be a successful undergraduate instructor; teaching of technical subjects and solving problems; emphasis on practical applications of lesson material and class demonstrations; techniques for teaching effective classes; opportunity for students to teach; intended for graduating Ph.D. students with a career interest in a university environment.

Structures, Mechanics, and Transportation

053:030 Soil Mechanics 3 s.h.
Identification and classification of earth materials; hydraulic and mechanical properties of soils; soil improvement; laboratory testing. Prerequisite: 057:019.

053:033 Principles of Structural Engineering 3 s.h.
Fundamental principles of structural analysis applied to statically determinate and indeterminate structures, continuous beams, trusses, and frames; external and internal equilibrium, compatibility of deformation, influence lines, virtual work; parallel use of classical and matrix formulation; slope deflection, flexibility and stiffness methods; use of computers. Prerequisite: 057:019.

053:063 Principles of Transportation Engineering 3 s.h.
History of transportation modes, new transport technologies, traffic operations and control, economic evaluation of transport alternatives, transportation planning, roadway design and construction, route location, preventive maintenance strategies. Prerequisite: 053:015.

053:086 Civil Engineering Materials 3 s.h.
Structure, strength and failure, durability, deformation, practice, and processing for primary construction materials systems, including steel, aluminum, concrete, asphalt, fiber-reinforced composites, masonry, timber. Corequisites: 053:030 and 057:019.

053:131 Impacts of Technological Singularity 3 s.h.
Technological singularity—what it is, its current standing, impacts, implications; bio-, nano-, and information technologies; how new technologies affect sustainability; ethical issues raised by technologies.

053:132 Fundamentals of Vibrations 3 s.h.
Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; modal analysis; applications. Prerequisite: 057:019. Same as 058:153.

053:133 Finite Element I 3 s.h.
One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisite: 057:019. Same as 058:115.

053:134 Design of Steel Structures 3 s.h.
Concepts and procedures in steel design; LRFD (load and resistance factor design) methodology for beams/columns; analysis and design of indeterminate structures. Prerequisite: 053:033.

053:135 Structural Modeling and Health Monitoring 3 s.h.
Measurements, structural modeling, structural analysis, stiffness method, trusses and frames, structural testing, modal analysis. Prerequisites: 053:033 and 057:019.

053:136 Design of Concrete Structures 3 s.h.
Fundamental analysis and design of reinforced concrete members and structures, flexure, shear, bond, continuity, beams, one-way slab system; columns. Prerequisite: 053:033.
Foundations of Structures  3 s.h.
Application of soil mechanics to analysis of structural foundations; slope stability analysis; bearing capacity and settlement of shallow and deep foundations; retaining structures, braced cuts, reinforced earth structures; usage of computational models; subsurface exploration methods. Prerequisite: 053:030.

Intermediate Mechanics of Deformable Bodies  3 s.h.
Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisite: 057:019. Same as 051:151, 058:150.

Fatigue/Durability in Design  3 s.h.
Macro- and micromechanisms of fatigue behavior, design of engineering materials/components/structures subjected to cyclic loading, emphasis on metals; stress-life, strain-life, linear elastic fracture mechanics approach to fatigue crack growth; safe-life, fail-safe, damage tolerant design; constant and variable amplitude life predictions; notches, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 058:158.

Fracture Mechanics  3 s.h.
3-D stress states, definition and criteria for failure, nominal and local yield phenomena, linear elastic and elastic plastic fracture mechanics, plane stress and plane strain fracture toughness, J-Integral, crack opening displacement, environmental assisted cracking, fatigue crack growth, fail safe, and damage tolerant design. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 058:159.

Introduction to Bridge Engineering  3 s.h.
Bridge engineering and design; history of the bridge; factors that affect bridge design; bridges according to use (e.g., road, rail, pedestrian and bicycle) and type (e.g., suspension, cable stay, truss); how sustainability concepts may impact bridge design; substantial design exercise. Prerequisite: 053:033.

Design of Transportation Systems  3 s.h.
Application of CAD/CAE tools to transportation systems design; review of CAD tools, derivation of standards for geometric design, roadway design software, cross-sectional and longitudinal geometric design of highways, applications to visualization and animation. Prerequisite: 053:063 or graduate standing.

Traffic Engineering  3 s.h.
Design of traffic control devices; evaluation and analysis of intersections and transportation networks using appropriate computer software. Prerequisites: 22S:039 and 053:063.

Winter Highway Maintenance  3 s.h.
Aspects of winter highway maintenance; current and innovative practices and the theory that underpins them.

Pavement Analysis and Design  3 s.h.
Fundamental design principles, including pavement analysis and characterization and testing of asphalt and concrete pavement materials. Prerequisite: 053:063.

Public Transit Operations and Planning  3 s.h.
Bus, light and heavy rail, and paratransit modes; transit operations, planning, modeling and optimization, transit agency economics, transit finance, and evolving transportation policy; skills essential to planners and engineers who intend to work for a either planning agency, transportation provider, or a transportation or planning consulting firm; individual and group projects involving transit operations; for undergraduate and graduate engineering students and graduate urban and regional planning students. Same as 102:195.

Graduate Seminar: Transportation  0 s.h.
Recent advances and research in transportation engineering. Prerequisite: senior or graduate standing.

Finite Element II  3 s.h.
Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisite: 053:133. Same as 058:215.
Optimal design problem formulation; optimality conditions; linear, quadratic, convex, and nonlinear programming; Lagrangian duality; numerical algorithms for unconstrained and constrained design problems, design sensitivity analysis, engineering applications. Prerequisites: 053:113 or equivalent, and senior standing.

053:241 Continuum Mechanics and Elasticity  
Cartesian tensors and geometrical foundations; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity, elastic extension, torsion and bending of bars. Prerequisite: 057:019. Corequisite: 053:113 or graduate standing. Same as 058:279.

053:243 Computational Inelasticity  
Computational techniques and implementations for elastic, hyperelastic, elasto-plastic, visco-elastic, and viscoplastic material models; development of sound numerical integration algorithms from rate constitutive equations. Prerequisite: 053:241. Same as 058:251.

053:244 Energy Principles in Structural Mechanics  
Principles of virtual work; stationary and minimum potential energy; calculus of variations; Ritz method, Galerkin's method; beams, plates; Hamilton's principle; elastic stability; extremum principle of plasticity. Prerequisites: 058:113 and 058:150. Prerequisites: (for 053:244) 053:113 and 053:140. Same as 058:254.

053:246 Continuum Mechanics and Plasticity  
Finite strain measures and rate of deformation; principles of isotropy and materials indifference; constitutive equations of elastic and inelastic materials; internal variable theory of thermodynamics; endochronic theory of plasticity. Prerequisite: 053:241 or equivalent. Same as 058:258.

053:247 Advanced Continuum Mechanics  
Continuum mechanics of fluids and solids, balance laws, invariance restrictions, continuum thermodynamics, constraint theory, mixtures, materials with microstructure. Prerequisite: 058:262 or 058:279. Same as 058:252.

053:249 Multiscale Modeling  
Computational modeling of engineering materials ranging from molecular to continuum scales, molecular dynamics and Monte Carlo methods, nanoscale continuum modeling, scale-coupling methods. Prerequisite: 058:115 or 058:143. Same as 058:255.

053:250 Advanced Fracture Mechanics  
Fracture of modern engineering materials; linear-elastic fracture; computational methods; functionally graded materials; elastic-plastic fracture; multiscale fracture and fatigue crack initiation. Prerequisites: 058:113, 058:115, and 058:159. Same as 058:250.

053:262 Transportation Demand Analysis  
City planning procedures and traffic engineering techniques applied to transportation problems; trip generation, distribution, assignment, mode choice models; travel surveys, data collection techniques; arterial flow, intersection performance, parking; transit system analysis. Prerequisite: (for 053:262) 22S:039. Same as 102:262.

053:263 Application Simulation to Transportation  
Transportation system management and traffic engineering; application of real-time simulation and visualization. Prerequisite: 053:063 or 053:163. Same as 102:263.

Environmental Engineering and Science

053:050 Natural Environmental Systems  
Environmental chemistry and biology of air, water, and soil quality, air and water pollution, limnology, global atmospheric change, fate and transport of pollutants; hazardous substances, risk analysis, standard setting. Prerequisite: 004:011.

053:055 Principles of Environmental Engineering  
Water supply and treatment processes; wastewater treatment processes; processes for air pollution control, groundwater remediation; solid and hazardous waste management. Prerequisite: 053:050 or consent of instructor. Same as 152:162.
Groundwater

Groundwater quality and quantity; Darcy's Law, 2-D flow equation, unsaturated zone, contaminant transport, redox reactions, drinking water quality, bioremediation; laboratories in permeameter testing, porous media grain size analysis, pump testing, monitoring well installation.

Groundwater Modeling

Groundwater flow and contaminant transport modeling; numerical methods, applications of groundwater modeling to water supply, groundwater resources evaluation, remediation design using software; GMS (MODFLOW, MODPATH, and MT3D). Prerequisites: 012:166 or 053:103, and 22M:026. Same as 012:184.

Geology for Engineers

Introduction to the concepts of geology, earth materials, and earth processes as they relate to civil and environmental engineering practice; physical properties of rock and soil, hydrogeology and biogeochemistry of groundwater aquifers, hydrological and watershed processes. Prerequisite: engineering sophomore standing. Same as 012:179.

Design for the Developing World

Experience working on interdisciplinary teams to solve problems of the developing world; technologies for improving water and sanitation, energy, housing, and health; community building strategies, participatory methods, other techniques essential to good design; service-learning component.

Biological Treatment Processes

Applied microbiology and fundamental principles of aerobic and anaerobic biological wastewater treatment processes; sludge processing and advanced wastewater treatment and bioremediation; lectures and laboratory. Prerequisites: 053:050, 053:152, and 053:154. Corequisites: 053:055 and 053:156.

Environmental Chemistry I

Principles of general, physical, organic chemistry applied in water and air systems; emphasis on qualitative and quantitative understanding of chemical kinetics and equilibrium; acid-base reactions, complex formation, precipitation, dissolution, and oxidation-reduction reactions; organic nomenclature. Prerequisite: 004:012. Same as 052:231.

Environmental Chemistry Laboratory

Laboratory experiments to demonstrate important concepts in environmental chemistry and to familiarize students with procedures used to characterize water and wastewater and evaluate certain treatment processes. Prerequisite: 004:012 or equivalent. Corequisite: 053:152.

Environmental Microbiology

Fundamentals of microbiology and microbial ecology with application in water quality and biodegradation of priority pollutants; lectures and laboratory. Corequisite: 053:152.

Physical-Chemical Process Fundamentals

Theory of physical and chemical operations and processes in water and wastewater treatment, including fundamental aspects of process dynamics; lectures, laboratory. Prerequisites: 053:050 and 053:152. Corequisite: 053:055.

Environmental Engineering Design

Application of physical, chemical, and biological operations and processes to the design of water and wastewater treatment systems; applications in solid and hazardous waste treatment. Prerequisites: 053:050, 053:071, and 053:055.

Solid and Hazardous Wastes

Sources, characteristics, collection, disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Prerequisite: (for 053:158) 053:050. Prerequisite: (for 175:198) 175:197 or consent of instructor. Same as 175:198.

Air Pollution Control Technology

Sources, environmental and health impacts, regulations, modeling of air pollution; processes and alternative strategies for control; global climate considerations. Prerequisite: 053:050 or consent of instructor. Same as 052:235.

Atmospheric Chemistry and Physics
Principal chemical and physical processes affecting atmospheric trace gas and pollutant cycles; emphasis on atmospheric photochemistry, aerosol science, major sources, removal processes. Corequisite: 052:105. Same as 052:236.

**053:204 Environmental Health Policy**  
3 s.h.  
Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Prerequisite: (for 175:252) 175:197 or consent of instructor. Prerequisite: (for 053:204) 053:050. Same as 152:252, 175:252.

**053:225 Environmental Processing of Organic Chemicals**  
3 s.h.  
Environmental organic chemistry, with focus on toxic and persistent organic compounds; bioaccumulation in food webs; chemical diagenesis in air, water, sediment and biomaterials, global/regional transport mechanisms. Prerequisite: 053:152 or 053:252 or consent of instructor.

**053:251 Environmental Systems Modeling**  
3 s.h.  
Mathematical modeling of environmental systems, including rivers, lakes, estuaries, treatment systems for conventional and toxic pollutants. Prerequisites: 053:050, 053:055, and 053:152; or consent of instructor.

**053:252 Environmental Chemistry II**  
3 s.h.  
Solid-liquid interface problems, heterogenous equilibria, environmental organic chemistry, modeling chemical equilibrium and kinetics, redox chemistry, atmospheric chemistry. Prerequisite: 053:152.

**053:274 Foundations in Bioremediation**  
3 s.h.  
Xenobiotic degradation mechanisms with focus on the relationship between chemical structure and biochemical reactivity; process optimization through engineered control of the environment; bioremediation case studies emphasizing site characterization, system selection, design, operation, trouble-shooting. Prerequisite: 053:151 or equivalent.

**053:275 Perspectives in Biocatalysis**  
1-3 s.h.  

**Hydraulics, Hydrology, and Water Resources**

**053:071 Principles of Hydraulics and Hydrology**  
3 s.h.  
Hydraulics of pressure conduits and open channels, dimensional analysis, flow measurements, hydraulic machinery, laboratory. Prerequisite: 057:020.

**053:103 Water Quality**  
3 s.h.  
Sources, availability, uses, characteristics, criteria, best management practices for surface waters; protection of waters impaired by eutrophication, soil erosion and sedimentation; pathogenic organisms, habitat destruction, wastewater discharges, contaminated sediments, atmospheric deposition, watershed development, invasive species, irrigation return flows, stormwater discharges, nonpoint sources, agricultural runoff; laboratory component, measurement of water quality characteristics in the field.

**053:116 Probabilistic Methods in Hydroscience**  
3 s.h.  
Common probabilistic models used in hydrology, hydraulics, and water resources; derived distributions; multivariate models and estimation of model parameters; analysis of data and model building; uncertainty analysis. Prerequisites: 22M:034 and 22S:039.

**053:117 Remote Sensing**  
3 s.h.  
Fundamentals of electromagnetic waves, atmospheric radiative transfer, passive remote sensing, weather radar, hydrologic application of remote sensing. Prerequisite: 053:116 or consent of instructor.

**053:128 Fluvial Geomorphology**  
3 s.h.  
Hydrologic principles, stream channel processes, and fluvial geomorphology within drainage basin systems; spatial and temporal variations in water distribution, analysis of hydrological data, flow mechanisms, sediment transport, forecasting procedures, hydrograph construction, modeling. Prerequisite: 012:102 or another 100-level geology or hydraulics course; or consent of instructor. Same as 012:138.
053:169 Intermediate Mechanics of Fluids
Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisites: 057:020 and 058:040. Same as 058:160.

053:170 Flow in Open Channels
In-depth analysis of governing flow equations; steady uniform flow in channels of different resistance and cross section; flow control sections; specific energy considerations; analysis and computation of gradually varied profiles and spatially varied flow effected by lateral outflow and inflow; unsteady flow; flood routing. Prerequisite: 053:071.

053:171 Water Resources Engineering
Planning and economics of varied water resources projects; stochastic basis for design; flood damage mitigation, reservoirs, river morphology, economic analysis of water projects, urban water requirements, water supply, hydroelectric power systems, river navigation; contemporary civil-engineering problems and issues associated with water infrastructure development. Prerequisite: 053:174.

053:172 Experimental Methods in Fluid Mechanics and Heat Transfer
Review of theory; importance of experiments; modeling and scaling laws; experimental environment and facilities; measurements at full scale and on scaled models; use of wind and water tunnels, towing tanks, and hydraulic flumes; instruments for measuring pressure, temperature, velocity, turbulence; error analysis; data acquisition and processing; laboratory demonstrations, hands-on experiments; project. Prerequisite: 058:080 or equivalent. Same as 058:162.

053:173 Alluvial Channel Hydraulics
Laws governing fall velocity, applications to particle-size analysis; incipient motion, bed forms, bed load, suspended load, natural river processes; theory and practice of movable-bed model experiments. Prerequisite: 053:170.

053:174 Water Resource Design
Prerequisites to storm water management systems design, including design flows and rates; analysis and design of storm sewers, detention basins, street and highway drainage facilities, culverts, dams, spillways, measures for energy dissipation; review of wastewater transfer systems and design. Prerequisites: 22S:039 and 053:071.

053:175 Environmental Fluid Dynamics
Same as 058:163.

053:178 Hydrometeorology
Atmospheric thermodynamics; precipitation processes; evaporation; infiltration; surface runoff; hydrographs, runoff relations; runoff hydrography; storage problems; frequency, intensity, duration studies of storms, floods, droughts; hydrometeorological observations and network design; watershed modeling; urban hydrology climate.

053:183 Introduction to Comp Flow in Pipes and Channels
General review of numerical methods in hydraulics (finite-difference, finite-element, and method of characteristics); stability and accuracy of numerical schemes; steady free surface flows; flow transients in pipelines and channels. Prerequisite: 053:169.

053:185 International Perspectives in Water Sciences and Management
Internationalization and water, with focus on a country or a world region; intensive, in-depth exposure to complex issues that affect planning and execution of water projects in large-scale watersheds.

053:186 Contaminant Hydrogeology
Physical and chemical processes that govern mass transport, transformations, retardation, and attenuation of contaminants in groundwater; survey of sampling, monitoring, and groundwater remediation techniques; analytical and numerical solutions of equations using spreadsheets, computers. Same as 012:186.

053:270 Coastal Hydrodynamics
Waves, tides, harbor oscillations; coastal structures, estuary dynamics, salinity intrusion, sediment transportation in estuaries; beach processes and evolution. Prerequisite: 053:169.

053:272 Environmental Dispersion Processes
Review of classical diffusion theories; longitudinal dispersion, transverse and vertical mixing in free-surface turbulent shear flow; application to natural channels; selected topics including stream-tube models, mixing and dispersion of heated effluents. Corequisite: 053:169.

053:276 Viscous Flow 3 s.h.
Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers—equations, solution methods, applications; stability theory and transition; incompressible turbulent flow—mean-flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Prerequisite: 058:160. Prerequisite: (for 053:276) 053:169. Same as 058:260.

053:277 Inviscid Flow 3 s.h.
Derivation of governing equations for fluid flow; general theorems for motion of inviscid, incompressible flows; solution techniques for two- and three-dimensional irrotational flows; forces and moments acting on immersed bodies; inviscid flow with vorticity; inviscid compressible flow; numerical methods for solution of inviscid flows. Prerequisite: (for 053:277) 053:169. Same as 058:262.

Graduate Seminars, Advanced Topics, Research

053:190 Readings in Civil and Environmental Engineering arr.
For graduate nonmajors who want to earn credit in undergraduate civil and environmental engineering courses. Prerequisites: nonengineering graduate standing and consent of instructor.

053:191 Graduate Seminar: Structure, Mechanics, Materials 0 s.h.
Presentation and discussions of recent advances and research in structures, mechanics, and materials engineering by guest lecturers, faculty, students. Prerequisite: senior or graduate standing.

053:192 Environmental Engineering Seminar 0 s.h.
Presentation and discussion of current topics, case studies, and research in environmental science and engineering by students, guest lecturers, faculty. Prerequisite: senior or graduate standing.

053:193 Graduate Seminar: Hydraulics, Hydrology, and Water Resources 0 s.h.
Presentation and discussions of recent advances and research in hydraulics, hydrology, and water resources by guest lecturers, faculty, students. Prerequisite: senior or graduate standing.

053:195 Contemporary Topics in Civil and Environmental Engineering arr.
New topics or areas of study not formally offered in other civil and environmental courses; ice engineering, chaos and strange attractors, remote sensing, nonlinear dynamics of hydrologic processes, advanced water and wastewater treatment processes, hazardous waste control, global climate change, damage mechanics; based on faculty/student interest. Prerequisite: senior standing.

053:196 Advanced Subsurface Hydrology 3 s.h.
Basic and advanced concepts in subsurface fluid mechanics, well hydraulics, methods to characterize and model spatial variability, numerical modeling, and mathematical methods in hydrogeology. Prerequisite: 012:166 or engineering equivalent. Corequisites: 012:187 or 053:181, and 012:186 or 053:186. Same as 012:196.

053:198 Individual Investigations: Civil and Environmental Engineering arr.
Individual projects for civil and environmental engineering graduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of faculty advisor.

Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the M.S. with thesis in civil and environmental engineering. Prerequisites: graduate standing and consent of faculty advisor.

053:215 Hydrogeology Seminar 3 s.h.
Innovative experimental and modeling studies in hydrogeology; experimental need, design, mathematical formulation, assumptions, data collection techniques; data analysis and its importance to groundwater modeling. Prerequisite: 012:166 or consent of instructor. Same as 012:210.
053:299 Research: Civil and Environmental Engineering Ph.D. Dissertation
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for the Ph.D. in civil and environmental engineering. Prerequisite: consent of faculty advisor.
Electrical and Computer Engineering

Chair: Milan Sonka
Professors emeriti: Earl D. Eyman, Adrianus Korpel, Norbert R. Malik, John P. Robinson
Associate professors: Michael Abramoff, Mark S. Andersland, Gary Christensen, Anton Kruger, Punam Saha, Tom Schnell
Assistant professors: Reinhard Beichel, Mona Garvin, Zhiqiang Liu, Raghuraman Mudumbai, Hassan Raza, Daniel Thedens, Xiaodong Wu
Visiting assistant professor: Guadalupe Canahuate
Lecturer: Cliff Curry
Undergraduate degree: B.S.E. in Electrical Engineering
Graduate degrees: M.S., Ph.D. in Electrical and Computer Engineering
Web site: http://www.engineering.uiowa.edu/ece

Electrical engineers and computer engineers make vital contributions to nearly all facets of modern society through their work in areas such as computer systems, medical imaging, robotics, wireless communications, and fiber optics. From the World Wide Web to high-definition television, cellular telephones, and computer networks, the contributions of electrical and computer engineers are changing everyday life.

Many benefits that have sprung from electrical engineering technology now are taken for granted—noninvasive imaging of the brain and other internal organs, astonishing views of the solar system's outer planets, and wireless telecommunications. Electrical engineers also play crucial roles in major emerging technologies, such as wireless Internet, optical communications, and mapping of the human genome.

As the United States strives to retain or enlarge its share of national and international markets, electrical engineers are certain to play an important role in improving productivity through automation, increased efficiency, and new technologies.

Electrical and computer engineers work in research, design, development, manufacturing, sales, market analysis, consulting, field service, and management. They are employed in computer, semiconductor, software, aerospace, telecommunication, medical, radio, television, and power industries.

Undergraduate Program

The department offers the Bachelor of Science in Engineering in electrical engineering. The program's objective is to produce graduates who:

- contribute to society in a broad range of careers;
- function professionally in an increasingly international and rapidly changing world;
- effectively understand, use, and develop modern electrical and computer engineering technologies and concepts; and
- achieve success throughout their careers.

Bachelor of Science in Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The electrical engineering major provides technical depth and breadth as well as flexibility and the opportunity for students to customize their programs according to their own goals. Students select one of three tracks. The electrical engineering track provides a broad background in electrical engineering concepts and practice, preparing students for careers in a wide range of industries and organizations. The computer engineering track provides focus and depth for students preparing for careers or graduate study in computer systems hardware or software engineering.

The B.S.E. curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005 Engineering Problem Solving I, 059:006 Engineering Problem Solving II, and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. For information on B.S.E. curriculum stems and common course requirements, see Bachelor of Science in Engineering in the College of Engineering section of the Catalog.

Electrical engineering students complete a core of electrical and computer engineering foundation courses and then take five required track courses and two track electives. See "Track Breadth and Depth Electives" after the following curriculum list. Students must select elective focus area courses according to guidelines established by the Department of Electrical and Computer Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

FIRST YEAR
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<tr>
<th>Semester</th>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First Semester</td>
<td>004:011 Principles of Chemistry I</td>
<td>4 s.h.</td>
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<td></td>
<td>010:003 Accelerated Rhetoric (or 010:001-010:002)</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>22M:031 Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
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<td></td>
<td>059:005 Engineering Problem Solving I</td>
<td>3 s.h.</td>
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<td>059:090 First-Year Engineering Seminar</td>
<td>1 s.h.</td>
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<tr>
<td>Second Semester</td>
<td>22M:032 Engineering Mathematics II: Multivariable Calculus</td>
<td>4 s.h.</td>
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<td>22M:033 Engineering Mathematics III: Matrix Algebra</td>
<td>2 s.h.</td>
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<td>029:081 Introductory Physics I</td>
<td>4 s.h.</td>
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<td></td>
<td>059:006 Engineering Problem Solving II</td>
<td>3 s.h.</td>
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<td></td>
<td>General education component course</td>
<td>3 s.h.</td>
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<tr>
<td>SECOND YEAR</td>
<td>First Semester</td>
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<td>22M:034 Engineering Mathematics IV: Differential Equations</td>
<td>3 s.h.</td>
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<td>029:082 Introductory Physics II</td>
<td>3-4 s.h.</td>
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<td></td>
<td>059:007 Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
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<td>059:008 Engineering Fundamentals II: Electrical Circuits</td>
<td>3 s.h.</td>
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<td>059:009 Engineering Fundamentals III: Thermodynamics</td>
<td>3 s.h.</td>
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<td>Second Semester</td>
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<td></td>
<td>22M:037 Engineering Mathematics V: Vector Calculus</td>
<td>3 s.h.</td>
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<td>055:040 Linear Systems I</td>
<td>3 s.h.</td>
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<td>057:017 Computers in Engineering</td>
<td>3 s.h.</td>
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<td></td>
<td>057:018 Principles of Electronic Instrumentation</td>
<td>4 s.h.</td>
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<td></td>
<td>General education component course</td>
<td>3 s.h.</td>
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<tr>
<td>THIRD YEAR</td>
<td>First Semester</td>
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<td></td>
<td>22S:039 Probability and Statistics for the Engineering and Physical Sciences</td>
<td>3 s.h.</td>
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<td>055:032 Introduction to Digital Design</td>
<td>3 s.h.</td>
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<td></td>
<td>055:070 Electromagnetic Theory</td>
<td>3 s.h.</td>
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<td></td>
<td>055:091 Professional Seminar: Electrical Engineering</td>
<td>1 s.h.</td>
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<td></td>
<td>Two required track courses</td>
<td>6 s.h.</td>
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<td>Second Semester</td>
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<tr>
<td></td>
<td>Three required track courses</td>
<td>9 s.h.</td>
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<tr>
<td></td>
<td>Two elective focus area courses</td>
<td>6 s.h.</td>
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<td></td>
<td>General education component course</td>
<td>3 s.h.</td>
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<tr>
<td>FOURTH YEAR</td>
<td>First Semester</td>
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<td></td>
<td>055:088 Principles of Electrical Engineering Design</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Track breadth elective</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Three elective focus area courses</td>
<td>9 s.h.</td>
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</tbody>
</table>
General education component course
3 s.h.

Second Semester

055:089 Senior Electrical Engineering Design
3 s.h.
Track depth elective
3 s.h.
Two elective focus area courses
6 s.h.
General education component course
3 s.h.

Required Track Courses
Each electrical engineering curriculum track requires five track courses, as follows.

COMPUTER ENGINEERING TRACK
22C:019 Discrete Structures
3 s.h.
22C:031 Algorithms
3 s.h.
055:033 Introduction to Software Design
3 s.h.
055:035 Computer Architecture and Organization
3 s.h.
055:036 Embedded Systems and Systems Software
3 s.h.

ELECTRICAL ENGINEERING TRACK
055:041 Electronic Circuits
4 s.h.
055:043 Linear Systems II
3 s.h.
055:050 Communication Systems
3 s.h.
055:060 Control Systems
3 s.h.
055:072 Electrical Engineering Materials and Devices
3 s.h.

TRACK BREADTH AND DEPTH ELECTIVES
Students choose one track breadth elective from the courses required for one of the other two tracks.

Students also choose one track depth elective, which must be an advanced course in a subject area within the student’s track—normally a 100-level course for which one of the required track courses is a prerequisite. For a complete list of depth electives for each track, see the Department of Electrical and Computer Engineering web site.

Elective Focus Area
The elective focus area provides access to the broad range of course work in the department, the college, and the University. Students work with their academic advisors to develop an elective focus area tailored to their own goals—for example, additional technical depth in one or more areas of electrical engineering, completion of a minor in a relevant area, completion of the Certificate in Technological Entrepreneurship, or pursuit of interdisciplinary experience.

The elective focus area must include at least 15 s.h. of technical course work, at least 6 s.h. of which must be earned in 100-level electrical and computer engineering courses. Students earning a minor in business administration (Tippie College of Business) or a Certificate in Technical Entrepreneurship may apply up to 6 s.h. of the required technical course work to the minor or certificate. All students must demonstrate an ability to work on multidisciplinary teams.

All elective focus area plans must be approved in advance by the department.

For more detailed information about elective focus areas, see “Bachelor of Science in Engineering”/”Elective Focus Area” in the College of Engineering section of the Catalog. For more information about the department’s elective focus area guidelines, see the Department of Electrical and Computer Engineering web site.

Joint B.S.E./M.S.
The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for electrical engineering undergraduates who intend to earn an M.S. in electrical and computer engineering. B.S.E./M.S. students may take up to 12 s.h. of graduate-level course work and do thesis-level research while still undergraduates. They may count 9 s.h. of graduate course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.
To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Electrical and Computer Engineering.

Graduate Programs

The department offers a Master of Science, with and without thesis, and a Doctor of Philosophy in electrical and computer engineering. It also offers an optional M.S. subtrack in software engineering, which is available to thesis and nonthesis students. Excellence in scholarship and research is stimulated by close contact with the faculty throughout graduate study and through programs tailored to fit individual needs.

Students select an advisor and, with the advisor, plan an individual program bounded only by the broad guidelines of the Graduate College and the program. The department maintains close interdisciplinary ties with other University of Iowa departments, especially with the Departments of Physics and Astronomy, Computer Science, Mechanical and Industrial Engineering, and Biomedical Engineering, and the Carver College of Medicine. Principal areas of graduate study include waves and materials, computer systems, wireless communications, signal and image processing, computational genomics, and control systems and robotics.

Research and Study Areas

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY

The Center for Bioinformatics and Computational Biology (CBCB) is a multidisciplinary research enterprise that encompasses numerous laboratories and collaborates with many graduate programs on campus. Students may earn the Certificate in Informatics, offered by the Graduate College, to augment their Ph.D. training in disciplines ranging from molecular biology to biochemistry to computer science to engineering.

Since 1994, the Coordinated Laboratory for Computational Genomics, a CBCB affiliate, has engaged in a broad range of research activities that complement the Human Genome Project. Members of the laboratory develop new hardware and software techniques for analysis and annotation of genomic sequence, its transcription and translation, and the proteome. Other efforts are aimed at systematic capture and curation of phenotypic information acquired from massive databases of clinical information derived from collaborations with the College of Medicine. The goal of these projects is to elucidate the mechanisms of human disease and develop promising new methods for cures and treatments.

The laboratory's facilities include more than 200 workstations, 3 Linux clusters, and access to the NSF TeraGrid and other high-performance computing facilities. Projects in the laboratory frequently involve cutting-edge genomic and proteomic instruments such as the Roche 454 next-generation sequencing platform and several high-throughput gene expression (microarray) measurement platforms.

COMPUTER SYSTEMS AND VLSI CIRCUITS

Research emphasis is directed toward design and test of very-large-scale integrated (VLSI) circuits, high-performance computing and networking, and intelligent agent systems. Research in the VLSI area involves development of techniques and algorithms that assist in synthesis and testing of large-scale logic circuits, and incorporation of these techniques into computer-aided design tools. Current projects include new pattern sources for built-in-test, efficient test pattern generation, generation of compact test sets, and methods for reducing test data volumes.

High-performance computing research involves development of collaborative and parallel computing environments and associated software tools, and use of these facilities and tools in varied application domains, including image processing and computational biology. Current work in networking focuses on protocols and layer-integration schemes that support high-performance wireless networking, and on control and coordination of mobile ad hoc networks. Current research facilities in these areas include several large cluster computers and an experimental asynchronous transfer mode (ATM) network.

Departmental facilities that support this work include a network of SUN, HP, SGI, and Linux workstations, and high-speed network connections to collegiate, University, and national facilities, including an NSF-funded, dedicated ATM network of high-performance workstations, the college's Computer Systems Support (CSS), the University's Information Technology Services, national supercomputer centers, federal laboratories, and facilities at other universities.

CONTROL SYSTEMS AND ROBOTICS

Current research emphasizes optimal, adaptive, digital, robust and stochastic control and the control of discrete event dynamical systems. Recent work has concerned the estimation, identification, and robust control of linear and nonlinear dynamical systems; set membership identification, control over wireless communication channels; coordinated fault tolerant control of unmanned vehicles; use of control theory to analyze distributed computing,
communications, and manufacturing systems; interplay between communications and control; design of fast digital controllers using subband coding; and multirate control systems.

SIGNAL AND IMAGE PROCESSING

Research in image processing and basic and applied signal processing is supported by a digital signal processing laboratory and an image analysis laboratory. Collaborative research with faculty in the Departments of Radiology, Neurology, Psychiatry, Internal Medicine, Ophthalmology and Visual Sciences, Radiation Oncology, and Biomedical Engineering is directed at quantitative analysis of medical images.

In the area of signal processing, current projects include analysis and design of efficient adaptive algorithms for signal processing, efficient coding and transmission of speech, speech processing aids for the hearing-impaired, robust equalization of uncertain channels, application of neural networks to communications systems, multirate signal processing, and subband coding and channel equalization.

Image processing and analysis projects include development of novel methods for image segmentation, image registration, computer-aided detection and diagnosis, early identification of disease patterns from medical image data, computer-aided surgical planning, virtual and augmented reality medical image visualization, building anatomic atlases, and a broad range of translational medicine projects focusing on research and clinical applications of the novel methods. The areas of interest span all scales, from molecules to cells to small animals to humans, and cover a broad range of organ systems and targeted diseases. The spectrum of medical imaging modalities used for research and applications in image processing and analysis is equally broad, encompassing all existing modalities, including X-ray, CT, MR, PET, SPECT, and OCT.

The Medical Image Analysis Labs consist of several specialized facilities for digital image processing. They are equipped with state-of-the-art devices for data storage, transfer, visualization, and analysis. High-capacity data storage devoted to image processing research offers more than 17 TB of online hard disk space. An augmented reality medical image visualization lab serves as a high-performance collaborative resource for the Iowa Institute for Biomedical Imaging. The institute makes additional resources available to image processing research, including small and large animal as well as human research scanning facilities, and provides a backbone for interdisciplinary medical image analysis research to electrical and computer engineering graduate students and faculty.

WAVES AND MATERIALS

Research in this area is carried out primarily in the Iowa Advanced Technology Laboratories, a well-equipped, modern facility two blocks from the Engineering Building, and in Van Allen Hall. Current research topics are optical and electronic properties of semiconductors, semiconductor devices, electro-optics, nonlinear optics, nonlinear wave propagation in plasmas, nanotechnology, and medical devices.

Much work is done in collaboration with other University of Iowa departments, including the Departments of Physics and Astronomy, Chemistry, Internal Medicine, and Neurosurgery. Facilities include two molecular beam epitaxy reactors (in physics and astronomy), a microfabrication laboratory with micrometer resolution capabilities, electrical characterization capability to 22 GHz, several Ti-sapphire lasers, a mid-infrared optical parametric oscillator, and plasma equipment for nonlinear wave plasma interaction studies.

Examples of current projects are the design and fabrication of diode lasers based on the bandgap engineering of antimony and arsenic-based III-V compound semiconductors, phase control of laser arrays, development of an all-optical power equalizer, characterization of quantum well devices, nonlinear waveguide devices, development of a noncontact method to measure transport properties, plasma and optical soliton excitation and propagation, development of cellular probes, and a noninvasive glucose sensor for medical research.

WIRELESS COMMUNICATION SYSTEMS

The department is engaged in research using wireless sensor networks (WSNs), which consist of spatially distributed autonomous devices that use sensors to cooperatively monitor physical or environmental conditions such as temperature, sound, vibration, pressure, motion, and pollutants at different locations. WSNs are used for environment and habitat monitoring, healthcare applications, home automation, and traffic control. Current research includes the application of WSN, traditional telemetry, and commercial cellular communication infrastructure for geosciences data collection (e.g., rainfall, water quality, soil moisture).

Research activities in communication systems focus on design and analysis of receivers for digital wireless communications, especially on the development of effective and practical receivers for multi-user wireless cellular systems in multipath channels. Projects include the removal of intersymbol interference by blind identification/equalization, multi-user detection in CDMA without power control, receiver structures for 3G wireless cellular systems, ad hoc wireless networks, space time coding; resource allocation in OFDM systems; and scheduling in wireless networks. Fundamental theoretical issues and practical implementation are emphasized.
Master of Science

The Master of Science in electrical and computer engineering requires 30 s.h. of graduate credit with thesis, and 36 s.h. of graduate credit without thesis. Either option may precede Ph.D. study.

M.S. students must maintain a cumulative g.p.a. of at least 3.00.

Thesis students must complete at least 12 s.h. from an approved list of electrical and computer engineering courses and 6 s.h. in 055:199 Research: Electrical and Computer Engineering M.S. Thesis. Nonthesis students must complete at least 18 s.h. from an approved list of electrical and computer engineering courses; nonthesis students may count no more than 3 s.h. of independent study toward the degree. Courses required for the B.S.E. in electrical engineering do not count toward the M.S. requirements.

All M.S. students must successfully complete a final examination, which is conducted by a committee of at least three faculty members. One part of the final examination for thesis students consists of an oral defense of the thesis.

M.S. Subtrack in Software Engineering

A Master of Science subtrack in software engineering is available to both thesis and nonthesis students. The M.S. with software engineering subtrack requires the same amount of graduate credit as the M.S. without the subtrack: a minimum of 30 s.h. for the thesis option, and 36 s.h. for the nonthesis option. All rules for additional credit and the M.S. final examination are the same as for the M.S. without the subtrack. Successful completion of the subtrack results in the designation "with specialization in software engineering" on the student's transcript.

Both options require the following course work.

The software engineering subtrack requires the following.

All of these:

055:131 Introduction to VLSI Design 3 s.h.
055:132 High Performance Computer Architecture 3 s.h.
055:133 Graph Algorithms and Combinatorial Optimization 3 s.h.
055:180 Fundamentals of Software Engineering 3 s.h.
055:181 Formal Methods in Software Engineering 3 s.h.
055:182 Software Engineering Languages and Tools 3 s.h.
055:183 Software Engineering Project 3 s.h.

In addition to the courses listed above, thesis students complete another 3 s.h. of course work from the approved list of electrical and computer engineering courses; nonthesis students complete another 6 s.h.

Doctor of Philosophy

The Doctor of Philosophy in electrical and computer engineering requires a minimum of 72 s.h. of graduate credit. At least 45 s.h. must be earned in formal course work (not in thesis work or other independent study), including 30 s.h. from an approved list of electrical and computer engineering courses. Each Ph.D. student's study plan must be approved by the student's advisor and by the graduate committee.

Ph.D. students take a Ph.D. qualifying examination and a Ph.D. comprehensive examination. Then they must successfully complete a research program that includes a minimum of 18 s.h. of Ph.D. research and culminates in the preparation of a thesis. Finally, the candidate must present a successful oral defense of the thesis.

Ph.D. students must maintain a cumulative g.p.a. of 3.25 or higher in all graduate course work.

Acceptance to the Ph.D. program requires successful completion of the Ph.D. qualifying examination. This all-day written exam is given once a year, late in the spring semester. It covers four areas chosen by the student from a list of six. Students normally are expected to take the qualifying examination within the first 30 s.h. of graduate studies. A cumulative g.p.a. of at least 3.25 is required for admittance to the exam. Students who fail the examination may retake it only once, the next time it is offered.

Following successful completion of the Ph.D. qualifying examination and invitation to the Ph.D. program, a student must complete the two-part Ph.D. comprehensive examination. The first part is a written research proposal that includes a thorough literature survey providing the motivation and background for the proposal. The second part is an oral examination.

Students who fail to meet this deadline must retake the qualifying exam. The qualifying exam and the comprehensive exam may not be taken in the same semester.
The final requirement for completion of the Ph.D. program is the preparation and successful defense of the Ph.D. thesis. This must be completed no sooner than six months but no longer than three years after completion of the comprehensive examination.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

M.S. applicants must have a g.p.a. of at least 3.00, and Ph.D. applicants must have a g.p.a. of at least 3.25, on all electrical and computer engineering, mathematics, and physics course work. M.S. applicants with a g.p.a. between 2.75 and 3.00 in electrical and computer engineering, mathematics, and physics course work may be admitted on probation, if warranted by other aspects of their academic records.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer science) may be admitted on conditional status. They may be required to complete additional course work, without earning graduate credit, before being granted regular status.

Each application is reviewed individually. Extenuating circumstances may permit deviations from the usual standards.

Financial Support

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Facilities and Laboratories

Undergraduate Core

Electrical and computer engineering provides core instruction for the college in electrical circuits, electronics, instrumentation, and computers. A key part of this core teaching responsibility lies in providing students with an early opportunity to use engineering laboratory instrumentation.

Undergraduate Laboratories

The undergraduate laboratories include facilities for the study of electrical and electronic circuits, signals and systems, microprocessor-based computers and systems, measurement automation, communication systems, control systems, computer-aided design of VLSI circuits, image processing, robotics, and optics. The laboratories are equipped with modern equipment, including digital oscilloscopes, computer-controlled virtual instrumentation, and software and hardware for embedded-systems development.

Graduate Facilities and Laboratories

The department has laboratories intended primarily for graduate research in the areas of parallel processing, image processing, CAD for VLSI circuits, software engineering, electro-optics, plasma physics, control systems, cardiovascular image processing, and wireless communication. A network of SUN, IBM, and HP workstations and server nodes provides departmental computing support. This network is tied to the College of Engineering facilities, which consist of more than 100 Hewlett-Packard workstations. Connections are provided to central University facilities and national networks. Through cooperative arrangements, advanced computing facilities at national supercomputing centers, federal laboratories, and other universities are available for graduate research.

Electrical and Computer Engineering Courses

Special Topics

055:000 Cooperative Education Training Assignment: Electrical Engineering 0 s.h.
Electrical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to Cooperative Education Program and consent of cooperative faculty advisor.

055:002 Half-time Cooperative Education Training Assignment: Electrical Engineering 0 s.h.
Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.

055:088 Principles of Electrical Engineering Design 3 s.h.
Design problems requiring integration of subject matter from other required electrical and computer engineering courses. Prerequisite: senior standing.

055:089 Senior Electrical Engineering Design 3 s.h.
Individual or team project; demonstration of completed project and formal engineering report. Prerequisite: senior standing. Corequisite: 055:088.

055:090 Electrical Engineering Orientation Seminar 0 s.h.
Introduction to the electrical and computer engineering curriculum and profession; ethics and professionalism in the classroom and workplace. Prerequisite: first-year standing.

055:091 Professional Seminar: Electrical Engineering 1 s.h.
Professional aspects of electrical engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: junior standing.

Individual projects for electrical engineering undergraduate students: laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisite: consent of supervising faculty instructor.

Digital Systems, Computers, Software Engineering

055:032 Introduction to Digital Design 3 s.h.
Modern design and analysis of digital switching circuits; combinational logic; sequential circuits and system controllers; interfacing and busing techniques; design methodologies using medium- and large-scale integrated circuits; lab arranged. Prerequisite: sophomore standing.

055:033 Introduction to Software Design 3 s.h.
Design of software for engineering systems; algorithm design and structured programming; data structures; introduction to object-oriented programming in JAVA; applications to engineering problems; lab arranged. Prerequisite: 057:017.

055:035 Computer Architecture and Organization 3 s.h.
Basic concepts; computer evolution, register transfer level design, simulation techniques, instruction sets (CISC and RISC), assembly language programming, ALU design, arithmetic algorithms and realization of arithmetic functions, hardwired and microprogrammed control, memory hierarchies, virtual memory, cache memory, interrupts and DMA, input/output; introduction to high-performance techniques, pipelining, multiprocessing; introduction to hardware description languages (Verilog, VHDL); students design and simulate a simple processor. Offered fall semesters. Prerequisites: 055:032 and 057:017.

055:036 Embedded Systems and Systems Software 3 s.h.
Microprocessors and microcontrollers as components in engineering systems; embedded system design processes; microcontroller/microprocessor architecture; interrupts and traps; memory and device interfacing; low-level and high-level software design for embedded systems; examples of embedded system architecture and design; fundamentals of operating systems; tasks and processes; context switching and scheduling; memory and file management, interprocess communication; device drivers. Prerequisite: 057:017. Corequisite: 055:035.

055:121 Introduction to Bioinformatics 4 s.h.
Basics of genetics and molecular biology; overview of bioinformatics and genome science, including genome projects, functional genomics, phylogenetics, proteomics, microarrays, DNA polymorphisms, data-mining algorithms; experimental methods, analytical approaches. Prerequisite: 002:128 or 099:120 or graduate standing or consent of instructor. Same as 002:169, 051:121.

055:122 Computational Genomics 3 s.h.

055:130 Switching Theory 3 s.h.
Switching algebras; combinational circuits—hazards, minimization, multiple-output networks; sequential circuits—critical races, essential hazards, fundamental-mode, pulse-mode, synchronous circuits-state assignment, state reduction; input-output experiments. Prerequisite: 055:032.
055:131 Introduction to VLSI Design
MOS devices and circuits; MOS transistor theory, MOS processing technologies, MOS device models; timing and power considerations; performance issues; scaling; various logic schemes; circuit techniques; clocking strategies; I/O structures; design styles; ASIC design; MOS subsystem design; system case studies, use of electronic design automation tools, introduction to hardware description languages, design synthesis, design projects; lab. Prerequisites: 055:032 and 055:041.

055:132 High Performance Computer Architecture
Problems involved in designing and analyzing current machine architectures using hardware description language (HDL) simulation and analysis, hierarchical memory design, pipeline processing, vector machines, numerical applications, multiprocessor architectures and parallel algorithm design techniques; evaluation methods to determine relationship between computer design and design goals. Prerequisite: 22C:112 or 22C:113 or 055:035. Same as 22C:160.

055:133 Graph Algorithms and Combinatorial Optimization
Combinatorial optimization problems; time complexity; graph theory and algorithms; combinatorial optimization algorithms; complexity theory and NP-completeness; approximation algorithms; greedy algorithms and matroids. Prerequisite: 055:033 or equivalent.

055:138 Testing Digital Logic Circuits
Logic models for faults; fault detection in combinational and sequential circuits; fault-diagnosis; design for testability; random testing, compressed data testing, built-in testing. Prerequisite: 055:032.

055:180 Fundamentals of Software Engineering
Problem analysis, requirements definition, specification, design, implementation, testing/maintenance, integration, project management; human factors; management, technical communication; design methodologies; software validation, verification; group project experience. Prerequisite: 22C:022 or 055:033, and senior or graduate standing in computer science or electrical and computer engineering. Same as 22C:180.

055:181 Formal Methods in Software Engineering
Models, methods, and their application in all phases of software engineering process; specification methods; verification of consistency, completeness of specifications; verification using tools. Prerequisite: grade of C- or higher in 22C:180 or consent of instructor. Same as 22C:181.

055:182 Software Engineering Languages and Tools
Object-oriented programming concepts (objects, classes, single and multiple inheritance, polymorphism and dynamic binding); object-oriented languages and environments such as JAVA and Eiffel; introduction to design patterns and software architectures such as Model-View-Controller and application frameworks; component-based software development; use of standard component frameworks such as CORBA and COM/DCOM. Prerequisites: 22C:180 or 055:180, experience with an object-oriented programming language, and consent of instructor. Same as 22C:182.

055:183 Software Engineering Project
Team software development project using concepts and methodologies learned in earlier software engineering classes; practical aspects of large-scale software development. Prerequisites: 22C:180 and 22C:182, or consent of instructor. Same as 22C:183.

Signal and Image Processing

055:040 Linear Systems I
Introduction to continuous and discrete time signals and systems with emphasis on Fourier analysis; examples of signals and systems; notion of state and finite state machines; causality; linearity and time invariance; periodicity; Fourier transforms; frequency response; convolution; IIR and FIR filters, continuous and discrete Fourier transforms; sampling and reconstruction; stability. Prerequisites: 22M:034 and 059:008.

055:041 Electronic Circuits
Design and analysis of FET and BJT amplifiers; low, midrange, high-frequency analysis; difference amplifiers; feedback amplifiers; SPICE simulation; power amplifiers; digital logic families. Prerequisites: 055:040 and 057:018.
055:043 Linear Systems II  
Continuation of 055:040, emphasis on Laplace and Z-transform analysis; unilateral and bilateral Laplace transform; region of convergence; stability; block diagram algebra; first- and second-order continuous and discrete time systems; Bode plots. Prerequisite: 055:040.

055:141 Advanced Circuit Techniques  
Advanced circuit principles; component, signal, and noise models; subcircuit design including oscillators, amplifiers, multipliers, noise generators, frequency converters, phase-locked loops, filters, transmission gates, and level-shifters; measurement techniques including bridge, signal-averaging and lock-in techniques; case studies of A/D and D/A converters; single-supply op amps, low-noise, large-signal, and high-frequency circuits; lab. Prerequisite: 055:041.

055:145 Pattern Recognition  
Mathematical foundations and practical techniques of pattern recognition; adaptation, learning, description; statistical pattern recognition; syntactic pattern recognition, neural networks for recognition; fuzzy logic for recognition; nonstandard and combined pattern recognition approaches. Prerequisite: 055:040.

055:146 Digital Signal Processing  
Theory, techniques used in representing discrete-time signals; system concepts in frequency and sampling domains; FIR and IIR digital filter theory, design and realization techniques; theory, application of discrete Fourier transforms/FFT. Prerequisites: 055:043 and 055:046.

055:148 Digital Image Processing  
Mathematical foundations and practical techniques for digital manipulation of images; image sampling, compression, enhancement, linear and nonlinear filtering and restoration; Fourier domain analysis; image pre-processing, edge detection, filtering; image segmentation. Prerequisites: 051:040 or 055:040, and 051:060 or 055:043. Same as 051:148.

055:245 Magnetic Resonance Imaging Systems  
Mathematical foundations and practical implementation for magnetic resonance imaging (MRI); principles of image formation using Fourier and projection techniques, non-Cartesian sampling, tomographic image reconstruction, sources of artifacts and their correction. Prerequisites: 055:146 and 055:148, or equivalents.

055:247 Image Analysis and Understanding  
Mathematical foundations and practical techniques of digital image analysis and understanding; image segmentation (from edges and regions), object description (from boundaries, regions, scale, scale insensitive descriptions, 3-D shape, texture) pattern recognition (statistical and syntactic methods, cluster analysis), image understanding (knowledge representation, control strategies, matching, context, semantics), image analysis and understanding systems; lab arranged. Prerequisite: 055:148.

055:248 Advanced Digital Image Processing  
Advanced local operators (scale-space imaging, advanced edge detection, line and corner detection), image morphology (binary/gray scale operators, morphological segmentation and watershed), digital topology and geometry (binary/fuzzy digital topology, distance functions, skeletonization), color spaces, wavelets and multi-resolution processing (Haar transform, multi-resolution expansions, wavelet transforms in one or two dimensions, fast wavelet transform, wavelet packets), image registration (intensity correlation, mutual information, and landmark-based deformable registration methods). Prerequisites: 055:146 and 055:148.

055:292 ECE Graduate Seminar on Image Processing, Computer Vision, and Medical Imaging  
Recent advances and research in image processing, computer vision, and medical imaging; presentation by guest lecturers, faculty, students. Prerequisite: graduate standing or consent of instructor.

Communication and Information

055:050 Communication Systems  
Introduction to analog and digital communications; emphasis on modulation and noise analysis; Fourier analysis, probability theory, random variable and processes, AM, FM, pulse-coded modulation, binary digital modulation, SNR analysis of AM and FM, BER analysis of digital modulation schemes. Prerequisites: 22S:039 and 055:043.

055:054 Communication Networks  
3 s.h.
Communication networks, layered network architectures, applications, network programming interfaces (e.g., sockets), transport, congestion, routing, data link protocols, local area networks, emerging high-speed networks, multimedia networks, network security, Internet protocol; technology examples. Prerequisite: 057:017. Corequisite: 22S:039.

**055:150 Communication Theory**  
3 s.h.  
Random processes, source coding, digital transmission at baseband, optimum receiver design for Gaussian noise, error probability and power spectrum analysis, signal design for bandlimited channels, digital carrier modulation, bandwidth/energy/error probability tradeoffs, coding for error detection and correction. Prerequisites: 055:050 and 055:051.

**055:152 Introduction to Information and Coding Theories**  
3 s.h.  
Quantitative measure of information; source encoding; error detecting codes; block and convolutional codes, design of hardware and software implementations; Viterbi decoding. Prerequisite: 055:050.

**055:153 Wireless Sensor Networks**  
3 s.h.  
Wireless sensor networks overview; antennas, radio propagation models; WSN power and energy considerations, engineering issues, batteries, networks layers, stacks; medium access control (MAC); spread spectrum, FHSS, CDMA; infrastructure establishment; WSN routing; localization; synchronization; sensors; RFID; WSN case studies; lab. Prerequisites: 055:050 and senior standing.

**Controls**

**055:060 Control Systems**  
3 s.h.  
Fundamental concepts of linear feedback control, mathematical modeling, transfer functions, system response, feedback effects, stability, root-locus and frequency response analysis and design, compensation, lab arranged. Prerequisite: 055:040.

**055:160 Control Theory**  
3 s.h.  
State space approach; controllability, observability, canonical forms; design of Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisite: 055:060. Same as 058:133.

**055:164 Computer-Based Control Systems**  
3 s.h.  
Discrete and digital control systems; application of computers in control; sampling theorem; discrete time system models; analysis and design of discrete time systems; control design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisite: 055:060. Same as 058:134.

**Waves and Materials**

**055:070 Electromagnetic Theory**  
3 s.h.  
Electric and magnetic forces, Maxwell’s equations, wave propagation; applications, including radiation, transmission lines, circuit theory. Prerequisites: 22M:037 and 029:082.

**055:072 Electrical Engineering Materials and Devices**  
3 s.h.  
Fundamentals of semiconductor physics and devices; principles of the p-n junction diode, bipolar transistor, field effect transistor. Prerequisites: 029:082 and 055:041.

**055:170 Advanced Electromagnetic Theory**  
3 s.h.  
Time varying fields; plane wave propagation, reflection, refraction; waves in anisotropic media transmission lines, impedance matching, Smith chart; metallic and dielectric wave guides; resonators; antennas, antenna arrays. Prerequisite: 055:070.

**055:173 Introductory Solid State Physics**  
3 s.h.  
Phenomena associated with solid state; classification of solids and crystal structures, electronic and vibrational properties in solids; thermal, optical, magnetic, dielectric properties of solids. Prerequisites: 029:140 and 22M:028. Same as 029:193.

**055:177 Introductory Optics**  
3 s.h.
Geometrical and physical optics; interference; diffraction; polarization; microscopic origins of macroscopic optical properties of matter; optical activity; electro-optical, magneto-optical, acousto-optical phenomena; spontaneous Brillouin, Raman, Rayleigh scattering. Prerequisite: 029:130 or equivalent. Same as 029:180.

055:178 Optical Signal Processing
Linear systems description of optical propagation; diffraction and angular plane wave spectrum; lenses as Fourier transformers, lens configurations as generalized optical processors; lasers, coherence, spatial frequency analysis; holography; convolvers, correlators, matched filters; synthetic aperture radar; optical computing. Prerequisite: 055:070. Prerequisite: (for 029:184) 029:130 or equivalent. Same as 029:184.

055:179 Electro Optics
Wave equation solutions; optical birefringence; finite beam propagation in free space, dielectric waveguides and fibers; optical resonators; nonlinear phenomena; electro-optic, acousto-optic modulation; optical detection, noise; application to communication systems. Prerequisite: 055:070. Prerequisite: (for 029:182) 029:130 or equivalent. Same as 029:182.

055:272 Quantum Electronics

055:273 Semiconductor Physics

055:274 Laser Principles
Laser theory, stimulated emission, dispersion theory, broadening mechanisms, rate equations, gain saturation, optical resonators, mode-locking, Q-switching techniques, survey of laser types, modes of operation. Prerequisite: (for 029:224) 029:130 or equivalent. Prerequisite: (for 055:274) 055:170 or equivalent Same as 029:224.

055:276 Nonlinear Optics
Classical treatment of second- and third-order optical nonlinearities; phase matching, harmonic generation, three- and four-wave mixing, self-focusing, self-phase modulation, stimulated scattering of light, applications. Prerequisite: (for 029:222) 029:130 or equivalent. Prerequisite: (for 055:276) 029:130 or 055:170 or equivalent. Same as 029:222.

Graduate Seminars, Advanced Topics, Research

055:191 Graduate Seminar: Electrical and Computer Engineering
Presentation and discussion of recent advances and research in electrical and computer engineering by guest lecturers, faculty, students. Prerequisite: graduate standing.

055:195 Contemporary Topics in Electrical and Computer Engineering
New topics or areas of study not offered in other electrical and computer engineering courses; based on faculty/student interest; not available for individual study. Prerequisite: senior standing.

055:198 Individual Investigations: Electrical and Computer Engineering
Individual projects for electrical and computer engineering graduate students; laboratory study, engineering design project, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of faculty advisor.

055:199 Research: Electrical and Computer Engineering M.S. Thesis
Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for M.S. degree with thesis in electrical and computer engineering. Prerequisites: graduate standing and consent of faculty advisor.

055:291 Seminar: Plasma Physics
Current research. Same as 029:261.

055:295 Advanced Topics in Electrical and Computer Engineering
Discussion of current literature in electrical and computer engineering. Prerequisite: consent of instructor.

055:299 Research: Electrical and Computer Engineering Ph.D. Thesis
arr.
Experimental and/or analytical investigation of approved topic for partial fulfillment of requirements for Ph.D. in electrical and computer engineering. Prerequisite: consent of faculty advisor.
Mechanical and Industrial Engineering

The Department of Mechanical and Industrial Engineering offers distinct undergraduate and graduate degrees and research programs in industrial engineering and in mechanical engineering.

Industrial Engineering

Industrial engineering is concerned with analysis, design, and implementation of systems through optimal use of resources—human, material, energy, information, and financial. Systems may range from small units to extremely large operations. In order to accomplish these activities, the industrial engineer must be skilled in mathematics, physical sciences, management, and human relations as well as manufacturing, computer systems, economics, optimization, human behavior, and systems analysis and design.

Industrial engineers have many opportunities for employment and service in industrial, government, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. Industrial engineers hold positions as advisors to management or may participate directly in management decisions. Representative job titles include industrial engineer, manufacturing engineer, systems analyst, quality specialist, operations research analyst, internal consultant, human factors specialist, supervisor, and manager. Industrial engineers are employed by manufacturing firms, government agencies, and service organizations such as airlines, banks, hospitals, and consulting companies.

Mechanical Engineering

Mechanical engineering is broadly concerned with energy, manufacturing, and design of machines. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex human-machine systems—for energy conversion, biofuel production, environmental control, materials processing, transportation, materials handling, and other purposes. Major subspecialties of mechanical engineering include thermal-fluids engineering and mechanical systems engineering.

Thermal-fluid phenomena occur in many engineering systems and devices, such as aircraft; automobiles; off-road vehicles; ships; gas turbines; heat exchangers; material processes; heating, ventilating, air-conditioning, and refrigerating systems; hydraulic and wind turbines; airbag inflators; fuel cells; biofuel processes; environmental control devices; and biomedical systems. Mechanical systems and machines are the foundations of human technology. Examples are found in manufacturing equipment, medical equipment, automobiles, tractors, aircraft, ships, home appliances, packaging machinery, wind turbine gearbox, and robots.

Mechanical engineers find a wide variety of career opportunities in industry, government, and education. Mechanical engineers form an integral part of most industries, including aerospace firms, energy companies, automobile manufacturers, health care providers, food- and metal-processing industries, petroleum refineries, electronic and computer manufacturers, heavy construction and agricultural vehicle manufacturers, wind turbine manufacturers, thermal comfort equipment firms, farm equipment firms, and consulting companies.

Undergraduate Programs

The department offers a Bachelor of Science in Engineering in industrial engineering, and a Bachelor of Science in Engineering in mechanical engineering.

Industrial Engineering

The objective of the B.S.E. program in industrial engineering is to produce graduates who:

- have a strong foundation of mathematical, scientific, and technical knowledge and are equipped with skills in problem solving, teamwork, and communication that will serve them throughout their careers;
- are able to pursue successful careers as practicing industrial engineers in manufacturing industries, medical institutions, and engineering consulting firms;
- are able to successfully pursue advanced studies in industrial engineering; in other engineering disciplines; or in diverse nontechnical fields such as medicine, law, or business; and
- are able to assume professional leadership roles.

Mechanical Engineering
The objective of the B.S.E. program in mechanical engineering is to produce graduates who:

- have a strong foundation of knowledge in mathematics, science, and mechanical engineering and are equipped with skills in problem solving, design, teamwork, and communication that will serve them throughout their careers;
- are able to pursue successful careers as practicing mechanical engineers in manufacturing industries, energy and utility companies, and engineering consulting firms;
- are able to successfully pursue advanced studies in mechanical engineering; in related technical areas such as physics, applied mathematics, and other engineering disciplines; and in other professional fields; and
- are able to assume professional leadership roles.

B.S.E. in Industrial Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The industrial engineering major requires a strong foundation of courses in engineering science, mathematics, design, manufacturing, social science, and humanities.

Advanced work includes specialty courses in human factors and ergonomics, management, information systems, concurrent engineering, production, manufacturing, quality control, reliability, and operations research. Design is an integral part of the undergraduate program; all students complete a comprehensive design experience.

The B.S.E. curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005 Engineering Problem Solving I, 059:006 Engineering Problem Solving II, and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. For information on B.S.E. curriculum stems and common course requirements, see Bachelor of Science in Engineering in the College of Engineering section of the Catalog.

Students must select elective focus area courses according to guidelines established by the Department of Mechanical and Industrial Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

**FIRST YEAR**

**First Semester**

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>004:011</td>
<td>Principles of Chemistry I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>010:003</td>
<td>Accelerated Rhetoric</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:031</td>
<td>Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:005</td>
<td>Engineering Problem Solving I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:090</td>
<td>First-Year Engineering Seminar</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>22M:032</td>
<td>Engineering Mathematics II: Multivariable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:033</td>
<td>Engineering Mathematics III: Matrix Algebra</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>029:081</td>
<td>Introductory Physics I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>056:010</td>
<td>Industrial Engineering First-Year Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>059:006</td>
<td>Engineering Problem Solving II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>General education component course</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**SECOND YEAR**

**First Semester**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>22M:034</td>
<td>Engineering Mathematics IV: Differential Equations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>029:082</td>
<td>Introductory Physics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>031:001</td>
<td>Elementary Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>056:020</td>
<td>Industrial Engineering Sophomore Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>059:007</td>
<td>Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>
059:008 Engineering Fundamentals II: Electrical Circuits 3 s.h.
059:009 Engineering Fundamentals III: Thermodynamics 3 s.h.

Second Semester

22S:039 Probability and Statistics for the Engineering and Physical Sciences 3 s.h.
056:020 Industrial Engineering Sophomore Seminar 0 s.h.
056:054 Engineering Economy 3 s.h.
057:015 Materials Science 3 s.h.
Systems design elective 3 s.h.
Elective focus area course 3 s.h.

THIRD YEAR

First Semester

056:032 Design for Manufacturing 3 s.h.
056:091 Professional Seminar: Industrial Engineering 0 s.h.
056:144 Human Factors 3 s.h.
056:171 Operations Research 3 s.h.
Elective focus area course 3 s.h.
General education component course (100 level) 3 s.h.

Second Semester

22S:030 Statistical Methods and Computing 3 s.h.
056:091 Professional Seminar: Industrial Engineering 0 s.h.
056:131 Manufacturing Systems 3 s.h.
056:147 Ergonomics 3 s.h.
056:150 Information Systems Design 3 s.h.
056:178 Digital Systems Simulation 3 s.h.
General education component course (100 level) 3 s.h.

FOURTH YEAR

First Semester

056:091 Professional Seminar: Industrial Engineering 0 s.h.
056:134 Process Engineering 4 s.h.
056:162 Quality Control 3 s.h.
056:166 Stochastic Modeling 3 s.h.
Elective focus area course 3 s.h.
General education component course (100 level) 3 s.h.

Second Semester

056:160 Operational Systems Design 4 s.h.
Elective focus area courses (including math/science elective) 12 s.h.

Elective Focus Area

The industrial engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see "Bachelor of Science in Engineering"/"Elective Focus Area" in the College of Engineering section of the Catalog. For a list of standard industrial engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Mechanical and Industrial Engineering web site.

Joint B.S.E./M.S. in Industrial Engineering
The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for industrial engineering undergraduates who intend to earn an M.S. in industrial engineering. B.S.E./M.S. students may take up to 12 s.h. of graduate-level course work, attend the program's graduate seminar, and work with a faculty member on a master's thesis project while still undergraduates. They may count 6 s.h. of graduate course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

Some students in undergraduate majors other than industrial engineering may be admitted to the combined program; they must meet the same admission requirements as industrial engineering majors. In some cases, they may be required to take additional course work to meet the prerequisite requirements for upper-level courses.

B.S.E. in Mechanical Engineering

The Bachelor of Science in Engineering requires a minimum of 128 s.h. The mechanical engineering major lays a foundation in the basic disciplines of mathematics, physics, and chemistry and in the engineering sciences of statics, dynamics, thermodynamics, mechanics of deformable bodies, mechanics of fluids and transfer processes, materials science, and electrical sciences. An understanding of these sciences enables mechanical engineers to design parts of systems and understand whole systems, plan the production and use of energy, plan and operate industrial manufacturing facilities, and design automatic control systems for machines and other mechanical systems.

Students develop an awareness of social and humanistic issues relating to business, environment, government, history, language, religion, and international relations. They also acquire an appreciation of professional and ethical responsibilities.

The B.S.E. curriculum covers four major stems: mathematics and basic sciences, engineering topics, elective focus area, and general education (15 s.h. of humanities and social science courses). All students take 059:005 Engineering Problem Solving I, 059:006 Engineering Problem Solving II, and 010:003 Accelerated Rhetoric. General education component courses must be selected to satisfy the requirements of the College of Engineering. For information on B.S.E. curriculum stems and common course requirements, see Bachelor of Science in Engineering in the College of Engineering section of the Catalog.

Upper-level students work on team projects in a senior capstone design course, 058:086 Mechanical Engineering Design Project. Some students may arrange to participate in established research projects.

Students must select elective focus area courses according to guidelines established by the Department of Mechanical and Industrial Engineering. See "Elective Focus Area" after the following curriculum list.

Some courses in the curriculum are prerequisites to others. Students who take courses in the order below satisfy the prerequisite requirements automatically. Students who do not follow this sequence still must satisfy all course prerequisites.

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<td>4 s.h.</td>
</tr>
<tr>
<td>059:005 Engineering Problem Solving I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:090 First-Year Engineering Seminar</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
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<tbody>
<tr>
<td>22M:032 Engineering Mathematics II: Multivariable Calculus</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:033 Engineering Mathematics III: Matrix Algebra</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>029:081 Introductory Physics I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>059:006 Engineering Problem Solving II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>General education component course</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
### SECOND YEAR

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<table>
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<td>3 s.h.</td>
</tr>
<tr>
<td>058:020</td>
<td>Mechanical Engineering Sophomore Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>059:007</td>
<td>Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>059:008</td>
<td>Engineering Fundamentals II: Electrical Circuits</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>059:009</td>
<td>Engineering Fundamentals III: Thermodynamics</td>
<td>3 s.h.</td>
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<td>General education component course</td>
<td>3 s.h.</td>
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</table>

**Second Semester**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>057:010</td>
<td>Dynamics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>057:015</td>
<td>Materials Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>057:019</td>
<td>Mechanics of Deformable Bodies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>058:032</td>
<td>Design for Manufacturing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective focus area course</td>
<td>3 s.h.</td>
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</table>

### THIRD YEAR

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<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>22M:037</td>
<td>Engineering Mathematics V: Vector Calculus</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22S:039</td>
<td>Probability and Statistics for the Engineering and Physical Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>057:018</td>
<td>Principles of Electronic Instrumentation</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>057:020</td>
<td>Fluid Mechanics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>058:091</td>
<td>Professional Seminar: Mechanical Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective focus area course</td>
<td>3 s.h.</td>
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**Second Semester**

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<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>058:040</td>
<td>Thermodynamics II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>058:045</td>
<td>Heat Transfer</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>058:052</td>
<td>Mechanical Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective focus area course</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>General education component course</td>
<td>3 s.h.</td>
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</table>

### FOURTH YEAR

**First Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>058:048</td>
<td>Energy Systems Design</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>058:055</td>
<td>Mechanical Systems Design</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>058:091</td>
<td>Professional Seminar: Mechanical Engineering</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective focus area courses</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>General education component course (100 level)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Second Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>058:080</td>
<td>Experimental Engineering</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>058:086</td>
<td>Mechanical Engineering Design Project</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Elective focus area courses</td>
<td>6 s.h.</td>
</tr>
<tr>
<td></td>
<td>General education component course (100 level)</td>
<td>3 s.h.</td>
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Elective Focus Area

The mechanical engineering program offers a variety of elective focus area options, including standard focus areas developed and maintained by the program and flexible focus areas tailored to individual student interests. For more detailed information about elective focus areas, see "Bachelor of Science in Engineering"/"Elective Focus Area" in the College of Engineering section of the Catalog. For a list of standard mechanical engineering elective focus area options and guidelines for tailored elective focus areas, see the Department of Mechanical and Industrial Engineering web site.

Joint B.S.E./M.S. in Mechanical Engineering

The College of Engineering offers a joint (fast-track) Bachelor of Science in Engineering/Master of Science for mechanical engineering undergraduates who intend to earn an M.S. in mechanical engineering. B.S.E./M.S. students may take up to 12 s.h. of graduate-level course work, attend the program's graduate seminar, and participate in master's research while still undergraduates. They may count 6 s.h. of graduate course work toward both degrees. Once students complete the requirements for the bachelor's degree, they are granted the B.S.E., and they normally complete the M.S. one year later.

To be admitted to the joint degree program, students must have completed at least 80 s.h., must have a cumulative g.p.a. of at least 3.25, and must submit a letter of application to the chair of the Department of Mechanical and Industrial Engineering.

Graduate Programs

The Department of Mechanical and Industrial Engineering offers a Master of Science, with and without thesis, and a Doctor of Philosophy in industrial engineering; and a Master of Science, with and without thesis, and a Doctor of Philosophy in mechanical engineering.

The industrial engineering program also offers a wind power management concentration for M.S. and Ph.D. students.

Research and Study in Industrial Engineering

Graduate study in industrial engineering is tailored individually. Each student's study program is based on his or her background and career objectives and is designed according to sound academic practice. The curriculum is highly flexible; the goal is academic excellence.

The program offers six principal academic focus areas: design and manufacturing, human factors engineering and ergonomics, engineering management, reliability and production systems, operations research and applied statistics, and information systems. Graduate students participate in research in their academic concentration areas.

ENGINEERING MANAGEMENT

Current research in engineering management consists of entrepreneurship, parametric cash flow analysis, strategic management, and economic risk analysis. Engineering management studies concentrate on engineering administration, engineering economics, and information systems. This area is covered by courses in the 50 series.

HUMAN FACTORS AND ERGONOMICS

Current research in human factors and ergonomics includes investigation of the effects of visual and auditory displays on human information processing and development of computer systems that ease the challenges of controlling complex medical and robotic systems. This work examines how engineers should shape information technology to enhance productivity, safety, and customer satisfaction. Industrial engineering faculty members and students work to improve the effectiveness of robot systems for exploration of Mars and the Moon, to improve driving safety, and to design new cockpit interfaces. The department has several medical, flight, and driving simulators. It also conducts research in other facilities, including National Advanced Driving Simulator, the most advanced simulation facility in the world.

Human factors and ergonomics studies concentrate on designing systems compatible with human capabilities and limitations. Human factors engineering integrates components from the fields of psychology, cognitive sciences, physiology, statistics, and technical sciences to address issues of human-interface design and human-systems design. Specific considerations include human cognitive abilities and limitations, visual performance, error reduction, workload assessment and mitigation, design of jobs in the industrial environment, information acquisition and processing, choice of action, operator performance measurement, and economic concerns. This area is covered by courses in the 40 series.
INFORMATION SYSTEMS

Studies in information systems concentrate on system design. Design problems involve devising information systems that meet a diverse set of requirements. Contemporary topics include network-based systems, client/server systems, internet systems, and medical informatics.

MANUFACTURING

Ongoing manufacturing research consists of flexible manufacturing systems, optimum control of processes, and reliability assessment. Manufacturing courses, denoted by the 30 series, delve into selecting appropriate manufacturing methods, planning processing operations, devising control strategies, and designing products and manufacturing systems. Contemporary topics include computer-aided process planning, computer-aided design, computer-controlled manufacturing, concurrent engineering, and applications of artificial intelligence in manufacturing.

OPERATIONS RESEARCH AND APPLIED STATISTICS

Ongoing research in operations research and applied statistics deals with the application of optimization techniques for informed decision making in the public and private sectors. The primary focus of this work is modeling, simulating, and optimizing the design and operation of systems such as logistics, communications, health care, and manufacturing. Studies in operations research and applied statistics concentrate on mathematical programming, statistical, and computer sciences for modeling, analyzing, and optimizing systems. Various methodologies in this area include mathematical programming, heuristic optimization, statistical analysis, and digital systems simulation. This area is covered by courses in the 70 series.

QUALITY CONTROL AND PRODUCTION SYSTEMS

Current research in quality control and production systems focuses on measures for corporate quality and reliability, computer-aided layout and scheduling, just-in-time production, inspection, and online expert systems in process control. Studies of quality control and production systems focus on reliability engineering, quality control, and production systems. This area is covered by courses in the 60 series.

Research and Study in Mechanical Engineering

The graduate programs in mechanical engineering educate students in more depth and breadth than is possible at the baccalaureate level. This prepares the graduate to use contemporary methods at advanced levels in professional careers in engineering design, development, teaching, and research. Each student's plan of study is based on his or her background and career objectives, and is designed according to sound academic practice. Faculty members in the program have teaching and research expertise in energy and power conversion, fluid and thermal sciences, solid mechanics, mechanical systems, and related areas.

Students may develop programs emphasizing fluid mechanics, thermodynamics, heat transfer, fatigue and fracture mechanics, and mechanical systems. Some may pursue more general programs that combine emphases. Others may specialize in interdisciplinary areas (e.g., energy engineering, materials engineering, automatic control, chemical processes), which involve a combination of mechanical and industrial engineering departmental courses and appropriate electives from other departments in the College of Engineering and across the University. Ph.D. programs may center on any one of these areas through choice of appropriate course work and research topic.

For more information, see the Mechanical Engineering Graduate Student Handbook, available from the department. The mechanical engineering program offers the following research and study areas.

FLUID MECHANICS

The graduate program in fluid mechanics provides a rigorous and broad foundation in theoretical, numerical, and experimental aspects of the subject. It is especially suitable for those seeking careers in teaching and/or research in academic and industrial organizations. The program focuses on fundamental principles and techniques of solving problems in the varied fields of fluids engineering. It emphasizes computer use, both in mathematical modeling of flow phenomena and in acquisition and processing of experimental data.

Although most of the relevant courses are offered by the Department of Mechanical and Industrial Engineering, students are strongly encouraged to take applied mathematics and classical mechanics courses offered by the Departments of Mathematics and Physics and Astronomy in the College of Liberal Arts and Sciences and by other College of Engineering departments.

Current research projects include computational modeling of viscous and turbulent flows; vortex dynamics; unsteady flows; pulmonary flow; flow separation and control; atmospheric flows; environmental flows; ship hydrodynamics; thin liquid films; viscous flow around ships; propulsor flow and propulsor-body interactions; free-surface effects; nonlinear
wave theory; biomimetic fluid mechanics; hydraulic turbines; quantitative flow visualization and image processing; computational fluid dynamics; LDV and thermal anemometry for flow analysis; and uncertainty analysis.

MECHANICAL SYSTEMS

The graduate program in mechanical systems is designed to provide students with a broad, strong background in theoretical, computational, experimental, and applied aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamental principles, computational techniques, multiscale modeling and simulation, and experimentation used to analyze and design mechanical systems. Areas of concentration include reliability-based design and optimization, nanotechnology, tissue mechanics, machine and vehicle dynamics, optimal design, structural optimization, computational solid mechanics, probabilistic mechanics, reliability, and fatigue and fracture mechanics.

Although most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering, students are encouraged to consider appropriate courses from other areas, such as mathematics, statistics, physics, and other College of Engineering departments.

Current research projects include design sensitivity analysis of rigid and flexible mechanical systems; computer-aided design; mechanism and manipulator workspace analysis; real-time dynamic simulation; vehicle system dynamics; finite element and meshfree methods for nonlinear mechanics, tissue mechanics, multiphysics, and multiple-scale problems; stochastic meshfree and finite element methods; design sensitivity analysis of nonlinear structural systems; reliability-based design optimization; shape optimal design of elastoplastic materials; optimal design of metal stamping process; multibody dynamics; probabilistic and elastic-plastic fracture mechanics; damage-tolerant design; and fatigue behavior and life prediction under constant and variable amplitude loading.

THERMAL SCIENCES

The graduate program in thermal sciences and systems is designed to provide students with a rigorous and broad foundation in theoretical and experimental aspects of the subject. It prepares future graduates for careers in industry, teaching, and government. The program emphasizes fundamentals of thermodynamics and heat transfer, and associated analytical, numerical, and experimental methods used in energy systems. Areas of concentration include fluid mechanics, thermodynamics, heat transfer, phase-change, combustion, and fuel cell.

Most courses relevant to the specialization areas are offered by the Department of Mechanical and Industrial Engineering. Students are encouraged to supplement these with courses from other areas, such as mathematics and physics, and courses offered by other College of Engineering departments in order to balance their programs.

Current research projects include biomass gasification; turbulent flames; combustion of biomass; alternative and renewable fuels; combustion instability; spray atomization and combustion; transport modeling of fuel cells; transport phenomena in materials processing, melting, and solidification; optimal control of thermal systems; and optical-based diagnostics of complex thermal processes.

M.S. in Industrial Engineering

The Master of Science in industrial engineering requires a minimum of 30 s.h. of graduate credit with thesis, and a minimum of 36 s.h. of graduate credit without thesis. Students who intend to pursue a Ph.D. should select the thesis option; those who hold research or teaching assistantships may be required to select the thesis option. The M.S. concentration in wind power management is open to students in either option.

All M.S. students must earn 21 s.h. in graduate-level industrial engineering courses. They earn a minimum of 9 s.h. in 200-level industrial engineering courses and complete at least one 100- or 200-level course from each of three focus areas: human factors, operations research, and reliability and systems design. Thesis students who plan to pursue a Ph.D. may choose to take two 200-level courses in each of the three focus areas in order to complete their Ph.D. breadth requirement before entering the doctoral program. Students select other courses in consultation with their advisors; choices are documented in the student's plan of study.

Thesis students may count a maximum of 6 s.h. of research credit toward the degree and may include that credit in the required 21 s.h. of graduate-level industrial engineering courses. The thesis option does not include research credit.

All graduate students must register for 056:191 Graduate Seminar: Industrial Engineering (1 s.h.) each semester of enrollment. They may not substitute seminar credit for regular course work or research credit.

M.S. students must maintain a g.p.a. of at least 3.00 on all graduate work at The University of Iowa and must pass a final comprehensive examination as specified by their examining committees.

Entering students must have strong verbal and written skills in English and a background in computer programming (e.g., C++, C, VB), probability, statistics, and mathematics equivalent to that required by accredited undergraduate engineering programs. Students with insufficient academic background must remedy deficiencies by taking appropriate
courses beyond those normally required for the study plan.

Entering students are advised by the department chair or by a designated faculty advisor. The department chair or the graduate program coordinator assigns an advisor to each student during his or her first regular semester in residence.

During that semester, the student and the advisor prepare a study plan, which they submit to the department chair for approval. Once the plan is approved, it is filed with the student's record. It is the student's responsibility to assure that the study plan is submitted to the department chair.

M.S. students must pass a final comprehensive examination, as specified by their examination committees. Examination committees consist of at least three Graduate College faculty members and must be approved by the department chair.

The comprehensive examination may consist of both oral and written parts. Its purpose is to assess the adequacy of the student's defense of thesis and/or course preparation. The final study plan, approved by the Graduate College dean, is prerequisite to the exam. The student should consult with his or her advisor on the composition of the advisory/examination committee and the time and place for the exam.

It is the student's responsibility to submit a degree application to the Graduate College by the college's deadline.

For more detailed information about M.S. program requirements, including a list of focus area courses, see the Industrial Engineering Graduate Handbook or link to industrial engineering graduate programs on the Department of Mechanical and Industrial Engineering web site.

**M.S. Concentration in Wind Power Management**

M.S. students in industrial engineering may concentrate in wind power management. They must meet all regular requirements for the M.S. in industrial engineering. In addition, thesis option students must take three courses (9 s.h.) from the list of recommended courses. Nonthesis option students must take four courses (12 s.h.) from the list of recommended courses and one course (3 s.h.) from the list of electives. Students' course selections must be approved by their advisors.

**WIND POWER MANAGEMENT RECOMMENDED COURSES**

053:107 Sustainable Systems 3 s.h.
053:117 Remote Sensing 3 s.h.
053:251 Environmental Systems Modeling 3 s.h.
056:134 Process Engineering 4 s.h.
056:162 Quality Control 3 s.h.
056:166 Stochastic Modeling 3 s.h.
056:171 Operations Research 3 s.h.
056:178 Digital Systems Simulation 3 s.h.
058:143 Computational Fluid and Thermal Engineering 3 s.h.
058:147 Fuel Cells 3 s.h.
058:195 Contemporary Topics in Mechanical Engineering 3 s.h.
058:255 Multiscale Modeling 3 s.h.
058:268 Turbulent Flows 3 s.h.

**WIND POWER MANAGEMENT ELECTIVES**

06K:176 Managerial Decision Models 3 s.h.
06K:226 Visual Basic Programming 3 s.h.
06K:228 Web and Multimedia 3 s.h.
06K:234 Information and Knowledge Management 3 s.h.
012:114 Energy and the Environment 3 s.h.
22C:144 Database Systems 3 s.h.
044:127 Environmental Quality: Science, Technology, and Policy 3 s.h.
044:135 Urban Geography 3 s.h.
056:176 Applied Linear Regression 3 s.h.
175:192 Occupational Safety 3 s.h.
Ph.D. in Industrial Engineering

The Ph.D. in industrial engineering requires a minimum of 72 s.h. It is granted upon demonstration of comprehensive knowledge and scholarly work at the highest level.

A maximum of 36 s.h. earned toward the M.S. may be counted toward the 72 s.h. required for the Ph.D. Students must spend at least two semesters in residence at The University of Iowa. They also must maintain a g.p.a. of at least 3.25 on all graduate work done at the University.

The degree requires broad academic background with considerable depth in at least one area of specialization that clearly demonstrates the student's capability to do high-level research. Ph.D. students must complete a series of written and oral examinations and a written dissertation based upon the results of an original investigation.

Students without a Master of Science in industrial engineering or a closely allied area must satisfy all requirements for the M.S. in industrial engineering before they may be admitted to the Ph.D. program.

Entering students are advised by the department chair or by a designated faculty advisor. During the student's first regular semester in residence, an advisor is assigned by the department chair or the graduate program coordinator. Students are expected to identify an industrial engineering faculty member willing to serve as their advisor by the end of their first regular semester in the program.

Once the student is assigned an advisor, he or she works with the advisor to prepare a study plan, which is submitted to the department chair for approval. Once the plan is approved by the department chair, it is filed with the student's record. At the beginning of each academic year, the industrial engineering faculty reviews the study plan and gives the student feedback regarding progress toward his or her degree objective. It is the student's responsibility to assure that the study plan is submitted to the program chair.

Admission to degree candidacy requires a g.p.a. of at least 3.25 on all graduate work taken at The University of Iowa, demonstration of capacity for individual research achievement (typically a dissertation research proposal), and successful completion of the comprehensive examination given by the examining committee.

The comprehensive examination is scheduled with approval of the student's advisor and the industrial engineering program coordinator or the graduate coordinator once the student's study plan is essentially completed. The examining committee determines the composition of the exam, including written and oral parts, and determines whether the student is ready to begin dissertation research.

For more detailed information about Ph.D. program requirements, see the Industrial Engineering Graduate Handbook or link to industrial engineering graduate programs on the Department of Mechanical and Industrial Engineering website.

All Ph.D. students must satisfy the following requirements.

Graduate students must register for 056:191 Graduate Seminar: Industrial Engineering (1 s.h.) each semester of enrollment. They may not substitute seminar credit for regular course work or research credit.

INDUSTRIAL ENGINEERING BREADTH REQUIREMENT

Each Ph.D. student must pass at least two 200-level industrial engineering courses in each of three focus areas: human factors, operations research, and reliability and systems design. Students who have earned an M.S. in the program may already have satisfied this requirement.

QUALIFYING EXAM

Each student must satisfy the qualifying exam requirement in two of the three focus areas. The requirement for a focus area can be satisfied by passing a written qualifying exam in the focus area or by earning a grade of A-minus or higher in each of two 200-level industrial engineering courses in the focus area.

FOCUS AREA STUDY

Students select one of the three focus areas and take additional course work in that area. They fulfill the minimum requirement of the focus area, completing at least two additional 200-level industrial engineering courses in the area.

COMPREHENSIVE EXAMINATION

Each student must demonstrate his or her ability to carry out creative individual research by completing and defending his or her dissertation research proposal in a comprehensive examination. The exam includes written and oral parts.
and is conducted by an examining committee of at least five industrial engineering and Graduate College faculty members. It is scheduled after the qualifying examination requirement has been satisfied. The examining committee determines whether the student is ready to begin dissertation research. Once the student has completed the comprehensive examination satisfactorily, he or she is accepted as a candidate for the Ph.D.

**FINAL EXAMINATION (THESIS DEFENSE)**

Each student must defend his or her completed dissertation in the final examination, which is conducted by the examining committee.

**Ph.D. Concentration in Wind Power Management**

Ph.D. students who concentrate in wind power management must meet all regular requirements for the doctoral degree. In addition, they must gain sufficient breadth and depth of domain knowledge in their study area by taking energy-related courses.

**Certificate in Health Informatics**

Graduate students in industrial engineering may elect to earn the Certificate in Health Informatics. The certificate program is an interdisciplinary collaboration among the health sciences, engineering, computer science, information science, management science, and statistics. Students in the program are trained to analyze health care data, evaluate information and knowledge, and study health care research, education, and practice. Certificate students complete a minimum of 20 s.h., including 056:186 Health Informatics I, 056:287 Health Informatics II, and approved electives.

The certificate may be earned in conjunction with the M.S. or Ph.D., or as postgraduate study. Completion of the Certificate in Health Informatics is noted on the student's transcript.

**M.S. in Mechanical Engineering**

The M.S. in mechanical engineering requires a minimum of 30 s.h., with or without thesis. Thesis students may count 6-9 s.h. earned for thesis research and writing toward the degree. Each student determines a study plan in consultation with an advisor and submits the plan to the department chair for approval.

All M.S. students must register for 058:191 Graduate Seminar: Mechanical Engineering each semester.

To earn the M.S., the student must maintain a g.p.a. of at least 3.00 on graduate work used to satisfy the degree requirements and must be successful in the final examination. This examination is administered by the student's committee, which consists of at least three faculty members, including at least one with primary appointment in the Department of Mechanical and Industrial Engineering.

The requirements for the M.S. may be completed within one calendar year. However, students with assistantship duties or other constraints may take up to two calendar years to complete the degree.

**Ph.D. in Mechanical Engineering**

The Ph.D. in mechanical engineering requires 72 s.h. of graduate credit, including at least 54 s.h. in course work (excluding thesis research) and at least 12 s.h. earned for Ph.D. thesis research. Students must pass the qualifying examination administered by the program to be formally admitted to the doctoral program.

Each student takes the comprehensive examination after passing the qualifying examination and when the course work specified in the study plan is nearly completed; in any case, the comprehensive examination should be taken no later than 28 months after the first registration in the Ph.D. program. To be admitted to the comprehensive examination, a student must be in good academic standing and must be recommended by his or her advisor. The exam is administered by the student's committee. Admission to Ph.D. candidacy is recognized upon successful completion of the comprehensive examination.

Having satisfactorily completed the exam, the student usually has only to complete and defend the dissertation at the final examination.

Requirements for the Ph.D. usually can be completed in three to four years beyond the M.S.

**Admission**

Applicants must meet the admission requirements of the Graduate College; for detailed information about Graduate College policies, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Industrial Engineering**
Reference letters, student research interests, grade-point average for previous graduate study, and factors such as faculty availability are considered in admission decisions.

M.S. applicants may be admitted from an ABET Inc.-accredited baccalaureate curriculum in any engineering discipline, or in the mathematical sciences, the physical sciences, or the computer sciences with a g.p.a. of at least 3.00 and an acceptable score on the Graduate Record Examination (GRE) General Test. Applicants from institutions outside the United States must meet equivalent conditions for regular admission. Students with lesser qualifications may be considered for conditional admission.

Students from business or social science programs who have mathematical preparation similar to that of engineering students are considered for regular or conditional admission. Students on conditional status must achieve regular status within two sessions of their first registration by attaining an acceptable grade-point average and gaining regular acceptance by the industrial engineering program faculty; otherwise, they are dismissed. Admissions may be limited by available resources.

Ph.D. applicants may be admitted from an ABET Inc.-accredited baccalaureate curriculum or a postbaccalaureate curriculum in any engineering discipline or in the mathematical sciences, computer science, or physical sciences with a g.p.a. of at least 3.25 and an acceptable GRE General Test score. Applicants from outside the United States must meet equivalent standards for regular admission as determined by The University of Iowa. Students also may be admitted from business or social science programs as determined individually.

Applicants who intend to pursue a Ph.D. and who have a B.S. or an M.S. without thesis usually are admitted first to the M.S. program. All admissions to the Ph.D. program are reviewed by the graduate studies committee.

**Mechanical Engineering**

Applicants who have earned a baccalaureate or master's degree in engineering curriculum or in the mathematical or physical sciences are eligible to be considered for admission to graduate study in mechanical engineering. In order to be considered for regular admission, applicants must have a g.p.a. of at least 3.00 on all previous college-level work and Graduate Record Examination (GRE) General Test scores of at least 500 verbal, 750 quantitative, and 4.5 analytical writing. Students whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign language (TOEFL).

Applicants with a lower grade-point average and/or GRE or TOEFL test scores may be considered for conditional admission, under exceptional circumstances. Applicants admitted conditionally must achieve regular standing within one semester (excluding summer sessions) after admission by attaining a g.p.a. of at least 3.00 on their first 9 s.h. at The University of Iowa. The Graduate College cancels registration for the subsequent semester for students who have not submitted their GRE and/or TOEFL scores by the end of the first semester after admission.

**Financial Support**

**Industrial Engineering**

A number of one-quarter-time and one-half-time teaching and research assistantships are available for graduate students. Awards are based on students' academic records and assessment of their potential contribution to the research and teaching goals of the program. Advanced graduate students also may qualify for appointments as graduate teaching fellows. Contact the chair of the Department of Mechanical and Industrial Engineering for details.

**Mechanical Engineering**

Financial support is available to M.S. and Ph.D. students, primarily through graduate assistantships in teaching or research from the Department of Mechanical and Industrial Engineering, the Center for Computer-Aided Design, IIHR–Hydroscience and Engineering, and the National Advanced Driving Simulator. These awards may be made on a semester, academic year, or calendar year basis. Awards and reappointments are competitive and are based on the student's potential contribution to the teaching and research goals of the department. Students who fulfill their assistantship responsibilities and continue to make satisfactory progress toward their degree objective receive preference in new assistantship awards. All applications for financial support should be submitted directly to the department chair.

M.S. students with assistantship appointments of one-quarter-time or more are required to register for a minimum of 9 s.h. during fall and spring semesters until they have completed 30 s.h. of course and research work beyond the baccalaureate degree. Ph.D. students with assistantship appointments of one-quarter-time or more must register for a minimum of 9 s.h. during fall and spring semesters until they have completed 72 s.h. of course and research work beyond the baccalaureate degree. Once they meet these minimums, graduate students must register for a graduate seminar each semester until they have successfully completed their final examination or thesis defense. All registrations should accurately reflect the amount and type of work undertaken, the use of University facilities, and the amount of consultation with the faculty.
Facilities and Laboratories

Industrial Engineering: Undergraduate and Graduate Facilities

For information about laboratories affiliated with core courses coordinated by other College of Engineering departments, see the departments’ Catalog sections.

ACTIVE LEARNING FACILITY

The Active Learning Facility (ALF) uses a project-oriented, team-based, hands-on approach to education. The facility provides NT servers, personal computers, and remote plug-ins for students’ laptops. It also offers a variety of software for project management, presentations, and data analysis and reporting.

ADVANCED SYSTEMS LABORATORY

The Advanced Systems Laboratory houses research on development and implementation of computational algorithms for the optimization of complex systems.

COGNITIVE SYSTEMS LABORATORY

The Cognitive Systems Laboratory is devoted to examining the safety, performance, and user acceptance implications of technology insertion into complex systems. The laboratory has networked computers, a video editing workstation, a process control simulation, and a low-cost driving simulator. The simulator is equipped with five cameras, instrumentation to record all driver activity, and an eye tracking system. The Cognitive Systems Laboratory shares the driving simulator and an instrumented vehicle with the Operator Performance Laboratory. The equipment supports class projects, system development, and undergraduate and graduate research.

COMPUTER NUMERICAL CONTROL MACHINING LABORATORY

The Computer Numerical Control (CNC) Machining Laboratory gives undergraduate and graduate students hands-on experience in programming and operating a CNC lathe, a CNC milling machine, and a coordinate measuring machine. CNC programs can be developed through the machine control keyboard or downloaded via RS232C data link from the college’s network. Research on the machinability of metals for cutting tool and machining parameters are conducted in the lab. A machine vision system is used to evaluate tool wear patterns.

E-COMMERCE LABORATORY

The E-Commerce Laboratory provides a facility for advanced research on Internet technologies and educational programs in key Internet subjects. The laboratory contains the full facilities necessary for a strong Internet capability, including Windows NT workstations, PCs and Macs, UNIX workstations, Internet server software for each platform, Java, VRML, JavaScript, ActiveX and VBScript programming facilities, videoconferencing cameras and group collaboration software, CAD systems software, and database systems.

Activities at the E-Commerce Laboratory include working with companies to improve their use of the Internet; providing assistance in advanced uses of the World Wide Web; providing seminars and workshops to improve Internet education; and carrying out research in key Internet technologies.

Research is under way in a number of key areas, including videoconferencing using the Internet; rapid product development through Internet links with suppliers and customers; virtual reality over the Internet; use of remote databases to access corporate data; use of the Internet to support team-based activities; security of Internet-based activities; and CAD file viewing and manipulation through the World Wide Web.

GROK LABORATORY

The GROK Laboratory develops computer software and mechanical devices to improve human performance with complex tasks. The laboratory has developed technologies used by NASA to control robots exploring South America and Mars. It also designs and develops microsurgery and dental simulators to train new surgeons and dentists.

INTELLIGENT SYSTEMS LABORATORY

The Intelligent Systems Laboratory provides facilities for research in computational intelligence leading to applications in industry, service organizations, and health care. Research in the laboratory is funded by government agencies and industrial corporations. Solutions to practical problems and enhancement of engineering education are emphasized. Most of the laboratory’s recent projects concentrate on development of software tools for product development, manufacturing, and health care applications.
The Intelligent Systems Laboratory is furnished with the latest computer technology to support research on numerous computing platforms. Diverse software is available for modeling, design, and construction of intelligent systems—for example, data mining software, neural networks, expert systems, and simulation software.

**OPERATOR PERFORMANCE LABORATORY**

Research in the Operator Performance Laboratory (OPL) focuses on determining human performance in a variety of situations, with particular emphasis on driving and flight deck environments. Much of the research is performed in the field using a state-of-the-art instrumented vehicle that is equipped with five cameras, eye movement equipment, two computers, video equipment, and a suite of sensors. The OPL also features a scale Boeing 737-400 fixed-base flight simulator with six channels of visuals. The flight simulator is equipped with a remote eye-tracking device that allows the activation of selected virtual controls in the flight deck. A specially designed stimulus presentation booth is used for color research and for photometry applications. Computer models of operator performance are designed based on the data obtained in the laboratory and field research.

**Mechanical Engineering: Undergraduate Instruction**

**ENGINEERING CORE**

The laboratories for fluid flows and transport processes contain a wind tunnel; a water flume; a water table; four water channels with porous media; three air-jet tables; various air, water, and oil flow devices; and facilities for numerous small-scale experiments to demonstrate the principles of mass, momentum, and energy transfer.

For information about laboratories affiliated with core courses coordinated by other College of Engineering departments, see the departments' Catalog sections.

**REQUIRED AND ELECTIVE COURSE LABORATORIES**

The mechanical engineering laboratory for experimental engineering provides undergraduate students with exposure to contemporary measurement theory, sensors, signal conditioners, instrumentation, and computer-aided data acquisition systems.

The laboratory for mechanical engineering design projects provides for either team or individual project activities in mechanical engineering design, construction of mechanisms, and testing.

The thermal and heat transfer laboratory is equipped with data acquisition systems to process data online on computers. Experiments in heat transfer measurements are made in this laboratory.

**Mechanical Engineering: Graduate Facilities**

**FLUID MECHANICS**

The program in fluid mechanics is conducted in close collaboration with IIHR—Hydroscience & Engineering. The equipment available to graduate students includes several wind tunnels and hydraulic flumes, an environmental flow facility, a towing tank, two special low-temperature flow facilities for investigation of ice phenomena, hot-wire and laser anemometer systems, particle-image velocimetry systems, and computer-based data acquisition systems.

Facilities available in the department include a flow visualization and imaging system with CCD (charge-coupled devices) camera, and a low-speed wind tunnel. IIHR and College of Engineering shops provide the necessary support. In addition to using in-house workstations and computers, the department's faculty members and students make extensive use of supercomputers at national centers.

**MECHANICAL SYSTEMS**

Experimental facilities for the department's fatigue and fracture mechanics study include access to a scanning electron microscope, a field computer data acquisition system, state-of-the-art computer controlled servo-hydraulic closed-loop fatigue test equipment, and equipment for characterization of material properties. Conventional strength of materials test equipment also is available.

Computer-based simulation research activities in the mechanical systems area are carried out mainly in the Center for Computer-Aided Design (CCAD). CCAD maintains a variety of high-performance computer systems in support of its technology research and development efforts. General computing services are supported by a number of UNIX and Windows applications servers connected to centralized file servers. CAD/CAE, software development, virtual prototyping, and virtual environment development applications are hosted on numerous high-performance workstations. Standard desktop, multimedia, and office productivity applications are hosted on a network of more than 40 workstations.
THERMAL SCIENCES

Facilities for research in the thermal sciences and systems consist of a low-pressure combustion chamber, a high-pressure continuous flow combustion chamber, a high-pressure chamber for atomization study, a test rig for heat transfer to near supercritical fluids, a diffusion flame test rig, an enclosed laminar flame test rig, a 20-liter explosion vessel, an airbag inflator test rig, an air atomization spray apparatus, test stands for melting and solidification studies, various optical measurement systems, and two fuel cell test rigs. Laser-based diagnostics (e.g., laser-induced fluorescence, imaging, and laser Doppler anemometry) are available for solidification, turbulent flow, heat transfer, and combustion studies. Flow visualization and imaging by CCD camera are available for the study of complex fluid motion and heat convection, and combustion flows.

Mechanical and Industrial Engineering Courses

Industrial Engineering

Special Topics

056:000 Cooperative Education Training Assignment: Industrial Engineering 0 s.h.
Industrial engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student’s permanent record. Prerequisites: admission to Cooperative Education Program and consent of faculty advisor.

056:002 Half-time Cooperative Education Training Assignment: Industrial Engineering 0 s.h.
Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.

056:010 Industrial Engineering First-Year Seminar 0 s.h.
Introduction to curriculum and profession; ethics and professionalism in classroom and workplace. Prerequisite: first-year or transfer standing in engineering.

056:020 Industrial Engineering Sophomore Seminar 0 s.h.
Curriculum and profession; ethics and professionalism in classroom and workplace. Prerequisite: sophomore or transfer standing in engineering.

056:091 Professional Seminar: Industrial Engineering 0 s.h.
Professional aspects of industrial engineering presented through lectures and discussions by guest speakers, field trips, films, panel discussions. Repeatable. Prerequisite: junior standing.

Independent projects in industrial engineering for undergraduate students, including laboratory study, an engineering design project, analysis and simulation of an engineering system, computer software development, CAD/CAM applications, or research. Prerequisite: consent of course advisor.

Manufacturing

056:032 Design for Manufacturing 3 s.h.
Fundamentals of design, engineering graphics, and manufacturing processing; computer graphics using Pro/ENGINEER for CAD and CAM; typical industrial processes, including casting, welding, machining, forming; laboratory exercises and projects. Corequisite: 057:015. Same as 051:062, 058:032.

056:131 Manufacturing Systems 3 s.h.
Manufacturing and logistics systems, supply chain management, MRP/ERP systems, lean manufacturing, concurrent engineering, value stream mapping and six sigma. Offered spring semesters. Prerequisites: 056:032 and 056:171, or consent of instructor. Same as 058:131.

056:132 Introduction to Industrial Robotics 3 s.h.
Operation and control of robot systems; robotic sensors and data acquisition subsystems; machine vision; software for robot control; design of robotic workcells; laboratory projects; manufacturing process control theory and application. Prerequisite: 056:032 or 058:032.

**056:134 Process Engineering** 4 s.h.
Methodologies, algorithms, and tools for processing modeling, analysis, and reengineering; modeling issues in product and component design, product and process modularity, quality, reliability, agility. Offered spring semesters. Prerequisite: 056:171.

**056:155 Wind Power Management** 3 s.h.
Principles of wind power production, wind turbine design, wind park location and design, turbine and wind park control, predictive modeling, integration of wind power with a grid.

**056:235 Computational Intelligence** 3 s.h.
Concepts, models, algorithms, and tools for development of intelligent systems; data mining, expert systems, neural networks for engineering, medical and systems applications. Prerequisite: 056:171. Same as 096:313.

**056:237 Operational Issues in Supply Chain Management Engineering** 3 s.h.
Probabilistic approaches, supply chain disruption analysis, human decision making in supply chains, auctions and electronic commerce in supply chains. Prerequisite: graduate standing.

**Human Factors and Ergonomics**

**056:144 Human Factors** 3 s.h.
Design of human-machine systems; development of optimum work environments by applying principles of behavioral science and basic knowledge of human capacities and limits. Offered fall semesters. Prerequisite: 031:001.

**056:147 Ergonomics** 3 s.h.
Ergonomic design of jobs and products in an industrial and consumer market setting; principles of good design, examples of poor design; consequences of poor job and product design; principles of work sampling, usability studies, performance rating, sizing and planning of workstations, hand tool design, ergonomic design in transportation; related group project.

**056:148 Human-Centered System Design** 3 s.h.
Design strategies for creating customer-centered systems; interview and observation techniques for gathering customer requirements and creating work models; tools for restructuring work and prototype development.

**056:240 Human Performance in Engineering Systems** 3 s.h.
Human performance limits and capabilities relevant to design of engineering systems; focus on cognitive limits associated with information processing. Prerequisite: graduate standing or consent of instructor.

**056:241 Research Methods in Human Factors Engineering** 3 s.h.
Logic and methods for research and for analysis and evaluation of complex human-machine systems; advanced techniques for enhancement of human interaction with advanced information technology; emphasis on cognitive task analysis techniques for innovative design, understanding of how technology affects safety, performance, user acceptance. Prerequisite: graduate standing or consent of instructor.

**056:242 Human/Computer Interaction** 3 s.h.
Development of projects using human factors principles in the design of computer interfaces.

**056:243 Modeling Operator Performance** 3 s.h.
Modeling techniques that support design and analysis of the human role in complex systems; process and concepts associated with model development and application. Prerequisite: graduate standing or consent of instructor.

**056:244 Airborne Design of Experiments** 3 s.h.
Issues in design of airborne human factors research, and techniques applicable to ground transportation research; statistical, human factors, flight mechanics, and organizational principles in flight test engineering; basic understanding of systematic approach to human factors flight testing, development of test points and test apparatus, flight envelope, proper briefing techniques, mission execution, and after-action review; securing, synchronizing, and analyzing data. Corequisite: 056:240 or 056:241 or consent of instructor.

056:245 Human Factors in Aviation

3 s.h.
Measuring, modeling, and optimizing human visual performance; display design for optimal legibility, research in visibility, legibility, conspicuity, and camouflage; visibility model development. Prerequisite: graduate standing or consent of instructor.

056:246 The Design of Virtual Environments

3 s.h.
Development of techniques for designing and creating three-dimensional representations of information for simulation, scientific visualization, and engineering; emphasis on human factors issues, software. Prerequisite: graduate standing or consent of instructor.

056:248 Analytical Methods in Human Factors Engineering

3 s.h.
How analytical techniques can be used to analyze human factors data, how techniques complement each other; techniques used across disciplines (e.g., behavioral science, civil and industrial engineering, economics, epidemiology, marketing); case studies; experience designing a survey and using statistical analysis software to analyze survey data. Prerequisites: 22S:039, 056:144, and graduate standing or consent of instructor.

Engineering Management

056:054 Engineering Economy

3 s.h.
Basic concepts of engineering economy: time value of money, cash flow equivalence, depreciation, tax considerations, continuous cash flows, cost accounting overview; main analysis techniques—present worth, uniform annual cost, rate of return, benefit/cost ratio, replacement and break-even analysis. Corequisite: 22S:039.

056:056 Leadership in Engineering

1 s.h.
How to balance aspects of college life, explore a personal mission, and set priorities. Prerequisite: consent of instructor.

056:150 Information Systems Design

3 s.h.
Structure and design of computer-based information systems; concepts of information systems, decision making; computer hardware, software, data structures; methods for determining system requirements; designing, implementing, evaluating, managing information systems; applied projects. Prerequisite: 059:006.

056:153 Engineering Administration I

3 s.h.
Current readings, cases in engineering management; methods for organizing, planning, funding, controlling engineering efforts; nature of the engineering and management function. Offered fall semesters. Prerequisite: 056:054.

Quality Control and Production Systems

056:160 Operational Systems Design

3-4 s.h.
Projects involving product and related operational system design in an industrial or service organization; associated entrepreneurial or intrapreneurial planning. Offered spring semesters. Prerequisites: 056:054 and 056:134.

056:161 Enhanced Design Experience

3 s.h.
Real-world, in-depth design experience in student teams, working with engineers at major companies in the region; application of industrial engineering knowledge and skills to design products and related operational systems. Prerequisite: graduate standing.

056:162 Quality Control

3 s.h.
Basic techniques of statistical quality control; application of control charts for process control variables; design of inspection plans and industrial experimentation; modern management aspects of quality assurance systems. Offered fall semesters. Prerequisites: 22S:030 and 22S:039. Same as 22S:133.
056:164 Six Sigma Operations and Quality Control
Six Sigma techniques for the DMAIC cycle (Define, Measure, Analyze, Improve, Control); what is needed for data collection (process inputs and outputs, measurement tools), conduct analysis (hypothesis testing, process capability studies), and conduct process improvement studies (design of experiments, response surface methodology); overview of Six Sigma, process and project management skills.

056:165 Advanced Six Sigma and Quality Improvement
Analytical techniques used for Six Sigma techniques DMAIC cycle; design and application of experiment techniques, including factorial designs, fractional factorial, Taguchi methods; semester-long project; understanding of statistical techniques required. Prerequisites: 22S:030 and 22S:039. Corequisite: 056:162.

056:166 Stochastic Modeling
Models for design and operation of manufacturing systems; equipment selection, machine layout, group technology, process planning, production planning and scheduling, just-in-time concepts, concurrent engineering, intelligent systems. Offered fall semesters. Prerequisite: 22S:039. Corequisite: 056:171.

056:268 Reliability Theory and Applications
Fundamental topics in reliability engineering, including system reliability modeling, statistical inference of lifetime data, basic preventive maintenance models; statistics and random process models, including Poisson processes, renewal processes, Markov processes. Prerequisites: 22M:033, and 22S:039 or equivalent.

Operations Research and Applied Statistics

056:171 Operations Research
Operations research models and applications emphasizing both deterministic and probabilistic models: linear programming, duality, parametric analysis, dynamic programming, Markov chains, queueing theory. Offered fall semesters. Prerequisite: 22M:033. Corequisite: 22S:039.

056:176 Applied Linear Regression
Regression analysis with focus on applications; model formulation, checking, selection; interpretation and presentation of analysis results; simple and multiple linear regression; logistic regression; ANOVA; hands-on data analysis with SAS software. Prerequisite: 22S:030 or 22S:039 or equivalent. Same as 22S:152.

056:178 Digital Systems Simulation
Simulation modeling and analysis; emphasis on construction of models, interpretation of modeling results; input and output analysis; modeling discrete, continuous and hybrid systems; construction of model-related databases--hands-on usage of ARENA simulation software, manufacturing, health care, and service applications. Offered spring semesters. Prerequisite: 056:171.

056:181 Internet Systems Design
The Internet's background; how the net operates and can be used; design of Internet-based systems, programming in an Internet-based environment. Corequisite: 057:017 or consent of instructor.

056:186 Health Informatics I
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 074:191, 096:283, 174:226, 200:110.

056:230 Innovation Science and Studies
Innovative typology and sources, classical innovation models, measuring innovation, innovation discovery from data, evolutionary computation in innovation, innovation life cycle.

056:236 Decision Making in Supply Chain Management Engineering
Control theory and Kalman filter approaches, supply chains and behavioral supply chains, organizational approaches, network approaches. Prerequisite: graduate standing or consent of instructor.

056:270 Linear Programming

Mathematical programming models; linear and integer programming, transportation models, large-scale linear programming, network flow models, convex separable programming. Prerequisites: calculus and linear algebra courses. Same as 06K:286.

056:271 Nonlinear Optimization
Mathematical models, theory, algorithms for constrained and unconstrained optimization; nonlinear, geometric, quadratic, dynamic programming; optimality conditions; aspects of duality theory. Prerequisite: 056:240.

056:272 Integer Programming and Network Flows
Theory, applications, algorithms for combinatorial optimization problems, including integer and mixed-integer mathematical programming problems as well as problems formulated in a network or graph setting, including routing of vehicles, location of facilities in networks and scheduling. Offered fall semesters. Prerequisite: 056:171 or equivalent.

056:273 Stochastic Systems
Probabilistic operations research models and algorithms, with emphasis on applications in manufacturing and production planning; random processes; Markov chains and applications; probabilistic dynamic programming; Markov decision problems; queueing models. Prerequisites: graduate standing or consent of instructor.

056:274 Stochastic Optimization
General tools and approaches used in decision making under uncertainties; modeling of uncertainties and risk, changes that uncertainties bring to the decision process, difficulties of incorporating uncertainties into optimization models, common techniques for solving stochastic problems.

056:275 Statistical Pattern Recognition
Fundamental mathematical tools for multivariate statistical analysis and decision-making processes in pattern recognition. Prerequisites: graduate standing or consent of instructor.

056:276 Game Theory
Problems, challenges, solution strategies, and other elements that arise among decisions makers who have aligned or opposing objectives; changes that collaboration and competition bring to decision making and problem solving; how ideas and concepts of game theory can be used to understand economic, industrial, social, and biological phenomena. Prerequisites: basic linear programming and probability.

056:278 Health Informatics II
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as 021:280, 051:189, 074:192, 096:289, 200:120.

Graduate Seminars, Advanced Topics, Research

056:191 Graduate Seminar: Industrial Engineering
Recent advances and research in industrial engineering presented by guest lecturers, faculty, students. Prerequisite: graduate standing.

056:195 Contemporary Topics in Industrial Engineering
New topics or areas of study not offered in other industrial engineering courses; topics based on faculty/student interest.

056:198 Individual Investigations: Industrial Engineering
Individual projects for industrial engineering graduate students: laboratory study, engineering design, analysis and simulation of an engineering system, computer software development, research. Prerequisites: graduate standing and consent of advisor.

056:199 Research: Industrial Engineering M.S. Thesis
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with thesis in industrial engineering. Prerequisites: graduate standing and consent of advisor.

056:295 Advanced Topics: Industrial Engineering
Discussion of current literature in industrial engineering. Prerequisite: consent of instructor.

056:298 Special Topics in Industrial Engineering
Prerequisite: consent of instructor.

056:299 Research: Industrial Engineering Ph.D. Dissertation
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in industrial engineering. Prerequisite: consent of advisor.

Mechanical Engineering

Special Topics

058:000 Cooperative Education Training Assignment: Mechanical Engineering
Mechanical engineering students participating in the Cooperative Education Program register in this course during work assignment periods; registration provides a record of participation in the program on the student's permanent record. Prerequisites: admission to the Cooperative Education Program and consent of the cooperative education faculty advisor.

058:002 Half-time Cooperative Education Training Assignment: Mechanical Engineering
Registration for work assignment periods; for students participating in the Cooperative Education Program. Prerequisite: consent of instructor.

058:020 Mechanical Engineering Sophomore Seminar
Introduction to the mechanical engineering profession and curriculum; ethics and professionalism in classroom and workplace; mentorship program and professional societies; visits to laboratories and local companies. Prerequisite: sophomore or transfer standing.

058:080 Experimental Engineering

058:086 Mechanical Engineering Design Project
Application of mechanical, thermal, fluid systems design; student or team design projects initiated at various levels in the design process and carried through to higher levels; emphasis on synthesis, written and oral communication. Corequisite: 058:048 or 058:055.

058:090 Mechanical Engineering First-Year Seminar
Introduction to the mechanical engineering curriculum, profession; visits to laboratories, industries. Prerequisite: first-year or transfer standing.

058:091 Professional Seminar: Mechanical Engineering
Professional aspects of mechanical engineering: presentations, student/faculty interaction, professional society involvement, panel discussions, plant trip. Prerequisite: junior standing.

058:098 Individual Investigations: Mechanical Engineering
Individual projects for mechanical engineering undergraduate students; laboratory study; engineering design project; analysis, synthesis, simulation of an engineering system; computer software development, research. Prerequisite: consent of advisor.

General Topics

058:110 Computer-Aided Engineering

3 s.h.
Computational engineering modeling and simulation, geometric modeling, grid generation, finite-element and finite-volume methods, uncertainty analysis, optimization, engineering applications. Prerequisites: 057:019 and 058:052, or equivalent. Same as 053:115.

058:111 Numerical Calculations 3 s.h.
Development of algorithms for functional approximations, numerical differentiation and integration; solution of algebraic and differential equations, with emphasis on digital computations; initial and boundary value problems. Prerequisite: 22M:034. Same as 053:111.

058:112 Engineering Design Optimization 3 s.h.
Engineering design projects involving modeling, formulation, and analysis using optimization concepts and principles; linear and nonlinear models, optimality conditions, numerical methods. Prerequisites: 22M:033, 059:007, and junior standing. Same as 053:112.

058:113 Mathematical Methods in Engineering 3 s.h.

058:115 Finite Element I 3 s.h.
One- and two-dimensional boundary value problems; heat flow, fluid flow, torsion of bars; trusses and frames; isoparametric mapping; higher order elements; elasticity problems; use of commercial software. Prerequisite: 057:019. Same as 053:133.

058:131 Manufacturing Systems 3 s.h.
Manufacturing and logistics systems, supply chain management, MRP/ERP systems, lean manufacturing, concurrent engineering, value stream mapping and six sigma. Offered spring semesters. Prerequisites: 056:032 and 056:171, or consent of instructor. Same as 056:131.

058:186 Enhanced Design Experience 3 s.h.
Experience working in teams on industry-sponsored design and product development projects scheduled for production; emphasis on practical experience with the complete design process, from conceptualization through prototyping, evaluation, testing, and production; written and oral communication. Prerequisites: 058:086 and consent of instructor.

058:214 Analytical Methods in Mechanical Systems 3 s.h.
Vector and function spaces; functionals and operators in Hilbert spaces; calculus of variations and functional analysis with application to mechanics; Ritz and Galerkin methods. Prerequisite: 058:113. Same as 053:214.

058:215 Finite Element II 3 s.h.
Computer implementation; plate and shell elements; mixed and hybrid formulations; nonlinear analysis; recent development; introduction to boundary element method. Prerequisite: 053:133. Same as 053:233.

Thermal Engineering and Fluids

058:040 Thermodynamics II 3 s.h.
Power and refrigeration cycles; mixtures of gases, psychometric mixtures; availability; thermodynamics of combustion and chemical equilibrium. Prerequisite: 059:009.

058:045 Heat Transfer 3 s.h.
Principles of heat transfer by conduction, convection, radiation; analytical and numerical methods of solution; applications to engineering problems. Prerequisites: 22M:037 and 057:020.

058:048 Energy Systems Design 4 s.h.
Principles and design of energy conversion systems, including solar, wind, and geothermal power systems; design of thermal-fluid system components, modeling and simulation of systems, optimization techniques; design projects. Prerequisites: 058:040 and 058:045.
058:140 Intermediate Thermodynamics
Fundamental principles of thermodynamics as applied to phase equilibrium; properties of fluids, first and second law, variable composition systems, behavior of real fluids, mathematical techniques for solution thermodynamics. Prerequisite: 052:103 or 058:040 or graduate standing. Same as 052:117.

058:143 Computational Fluid and Thermal Engineering
Governing equations of fluid flow and heat transfer; basic numerical techniques for solution of the governing equations; estimation of accuracy and stability of the approximations; boundary conditions; grid generation; applications to flows and heat transfer in engineering systems; familiarity with software for analysis and design of thermo-fluids systems. Prerequisite: 058:045.

058:145 Intermediate Heat Transfer
Steady and unsteady conduction; forced and natural convection; surface and gaseous radiation; condensation and evaporation; analytical and numerical methods and applications. Prerequisite: 058:045.

058:146 Modeling of Materials Processing
Manufacturing processes for metals, polymers, semiconductors; processing by casting, solidification, crystal growth, polymer molding and extrusion, welding, heat treating, application of optical (laser) and electromagnetic energy; processes that use momentum, heat, mass transfer principles; measurement and instrumentation for materials processing; current topics in materials processing. Prerequisite: 058:045 or consent of instructor.

058:147 Fuel Cells
Introduction to fuel cell designs and performance evaluation; thermodynamics, transport phenomena, and reaction fundamentals essential to understanding of the processes and phenomena that pose limits on fuel cell performance. Prerequisites: 058:040 and 058:045.

058:148 Combustion Engineering
Chemical kinetics, thermodynamic equilibrium, transport equations; thermodynamics of fluid flows; laminar flames; basic gas turbine cycles; propulsion systems--open gas turbine cycles, turboprop, turbofan, turbojet, ramjet; supersonic inlets; nozzle flows; contemporary propulsion concepts. Prerequisite: 058:040 or graduate standing.

058:149 Propulsion Engineering
Opportunity to develop basic understanding and knowledge of rocket and airbreathing propulsion systems, relevant terminology and analysis techniques, parameteric cycle analysis for ideal engines, off-design analysis methods, problem-solving methodology. Prerequisite: 058:040 or graduate standing.

058:160 Intermediate Mechanics of Fluids
Basic concepts and definitions; pressure distribution in a fluid; governing equations and boundary conditions; integral and differential analysis; dimensional analysis and similarity; experimental analysis; laminar and turbulent internal and external flows; potential flows; engineering applications. Prerequisites: 057:020 and 058:040. Same as 053:169.

058:162 Experimental Methods in Fluid Mechanics and Heat Transfer
Review of theory; importance of experiments; modeling and scaling laws; experimental environment and facilities; measurements at full scale and on scaled models; use of wind and water tunnels, towing tanks, and hydraulic flumes; instruments for measuring pressure, temperature, velocity, turbulence; error analysis; data acquisition and processing; laboratory demonstrations, hands-on experiments; project. Prerequisite: 058:080 or equivalent. Same as 053:172.

058:163 Environmental Fluid Dynamics
Same as 053:175.

058:165 Elements of Gas Flows
Thermodynamics of compressible fluid flow, with applications of continuity, momentum, energy equations; normal and oblique shock waves; Prandtl-Meyer expansion waves; flow with variable and constant area; Fanno flow; compressible flow with and without heat transfer. Prerequisites: 057:020 and 058:040.

058:245 Diffusive Transport
Diffusive transport of heat, mass, and momentum; phenomenological laws and analogies; analytical and numerical solution techniques; inverse heat conduction; multiphase and multicomponent systems. Prerequisite: 058:145. Same as 052:272.
058:248 Combustion Theory
Laminar flame theory; turbulent combustion; spray combustion; thermal ignition; pollutant formation, oxidation; combustion diagnostics. Prerequisites: 058:145, 058:160, and graduate standing.

058:260 Viscous Flow
Equations of viscous flow; classical analytical and numerical solutions; flow regimes and approximations; laminar boundary layers--equations, solution methods, applications; stability theory and transition; incompressible turbulent flow--mean-flow and Reynolds-stress equations, modeling, turbulent boundary layers and free shear flows. Prerequisite: 058:160. Prerequisite: (for 053:276) 053:169. Same as 053:276.

058:262 Inviscid Flow
Derivation of governing equations for fluid flow; general theorems for motion of inviscid, incompressible flows; solution techniques for two- and three-dimensional irrotational flows; forces and moments acting on immersed bodies; inviscid flow with vorticity; inviscid compressible flow; numerical methods for solution of inviscid flows. Prerequisite: 058:160. Prerequisite: (for 053:277) 053:169. Same as 053:277.

058:266 Interfacial Flows and Transport Processes
Physics of fluid interfaces and numerical techniques to simulate interface dynamics; interfacial flow coupled with thermal-fluid transport, from molecular interactions to continuum approximations; development of computer code segments to track and represent interface-flow interactions. Prerequisites: 058:145 and 058:160.

058:267 Multiphase Flow and Transport
Thermodynamic and mechanical aspects of interfacial phenomena and phase transitions; nucleation, phase-change, species transport, particulate flows, liquid-vapor systems, solidification, porous media. Prerequisites: 058:145 and 058:160.

058:268 Turbulent Flows
Origin; need for modeling, averages, Reynolds equations, statistical description; experimental methods and analysis; turbulence modeling; free shear layers and boundary layers; complex shear flows; development of computational strategies; recent literature on theory and applications, chaos phenomena. Prerequisite: 058:160.

058:269 Computational Fluid Dynamics and Heat Transfer
Development of numerical and algebraic approximations for elliptic, parabolic, hyperbolic partial differential equations; finite-volume, spectral, pseudo-spectral, Galerkin techniques; stability of numerical methods; CFL condition; stiff problems; adaptive grid generation and boundary-fitted coordinates; numerical solutions for one- and two-dimensional compressible and incompressible fluid flow and heat transfer problems. Prerequisites: 058:111, 058:160, and graduate standing.

058:296 Advanced Topics in Thermal and Fluid Engineering
Thermodynamics, fluid mechanics, heat and mass transfer, related experimental and analytical techniques; selection of subject and content determined by instructor/student interest. Prerequisite: graduate standing.

Mechanical Systems

058:032 Design for Manufacturing
Fundamentals of design, engineering graphics, and manufacturing processing; computer graphics using Pro/ENGINEER for CAD and CAM; typical industrial processes, including casting, welding, machining, forming; laboratory exercises and projects. Corequisite: 057:015. Same as 051:062, 056:032.

058:052 Mechanical Systems

058:055 Mechanical Systems Design
Design considerations for mechanical engineering systems; strength, deformation, durability of mechanical elements; safe-life, fail-safe, damage-tolerant design; standards, products liability, ethics in design; data-acquisition/life-prediction experiment. Prerequisite: 058:052.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>058:133</td>
<td>Control Theory</td>
<td>3</td>
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<td>State space approach; controllability, observability, canonical forms; design of Luenberger observers; feedback control via pole placement; stability, minimal realization; advanced topics. Prerequisite: 055:060. Same as 055:160.</td>
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<td>058:134</td>
<td>Computer-Based Control Systems</td>
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<td>Discrete and digital control systems; application of computers in control; sampling theorem; discrete time system models; analysis and design of discrete time systems; control design by state variable and input/output methods; advanced topics in digital controls; lab. Prerequisite: 055:060. Same as 055:164.</td>
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<tr>
<td>058:136</td>
<td>Digital Human Modeling and Simulation</td>
<td>3</td>
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<td>Fundamentals of using computational methods in modeling, simulating, and animating articulated kinematic chains such as robots and humans; underlying mathematics, introductory concepts in kinematics and dynamics, serial chain kinematics and multibody dynamics; methods from kinematics and dynamics, coupled with biomechanical concepts, provide an integrated approach to predicting and analyzing serial link motion (e.g., human and robotic manipulator motion). Prerequisite: 057:010. Same as 051:162.</td>
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<tr>
<td>058:150</td>
<td>Intermediate Mechanics of Deformable Bodies</td>
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<td>Application of equilibrium analyses, strain-displacement relations, and constitutive relationships to practical structural systems and elementary plane elasticity problems. Prerequisite: 057:019. Same as 051:151, 053:140.</td>
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<tr>
<td>058:152</td>
<td>Vehicle Dynamics and Simulation</td>
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<td>Vehicle dynamic response; suspension, steering, braking, and powertrain system design; computer-aided system simulation; tire modeling; acceleration and steady-state turning performance. Prerequisite: 057:010.</td>
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<tr>
<td>058:153</td>
<td>Fundamentals of Vibrations</td>
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<td>Vibration of linear discrete and continuous mechanical and structural systems; harmonic, periodic, and arbitrary excitation; modal analysis; applications. Prerequisite: 057:019. Same as 053:132.</td>
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<tr>
<td>058:154</td>
<td>Intermediate Kinematics and Dynamics</td>
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<td>Kinematic and dynamic analysis of unconstrained and constrained planar mechanical systems; computational kinematics, variational and Lagrangian dynamics, constrained dynamics. Prerequisite: 057:010. Corequisite: 058:052.</td>
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<tr>
<td>058:156</td>
<td>Mechanics of Robotics</td>
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<td>Introduction to robot components, types, power systems, mechanics, and control; homogeneous transformations, Denavit-Hartenberg formulation for serial kinematic chains, direct and inverse kinematics of serial manipulators, differential rotations and translations, manipulator Jacobian and inverse Jacobian, trajectory planning, position and force control of manipulators. Prerequisites: 22M:034, 057:010, and consent of instructor.</td>
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<tr>
<td>058:158</td>
<td>Fatigue/Durability in Design</td>
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<td>Macro- and micromechanisms of fatigue behavior, design of engineering materials/components/structures subjected to cyclic loading, emphasis on metals; stress-life, strain-life, linear elastic fracture mechanics approach to fatigue crack growth; safe-life, fail-safe, damage tolerant design; constant and variable amplitude life predictions; notches, residual stress, corrosion, temperature, multiaxial, weldments. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 053:148.</td>
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<tr>
<td>058:159</td>
<td>Fracture Mechanics</td>
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<td>3-D stress states, definition and criteria for failure, nominal and local yield phenomena, linear elastic and elastic plastic fracture mechanics, plane stress and plane strain fracture toughness, J-Integral, crack opening displacement, environmental assisted cracking, fatigue crack growth, fail safe, and damage tolerant design. Prerequisite: 051:085 or 058:055 or 058:150 or equivalent. Same as 053:149.</td>
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<td>058:250</td>
<td>Advanced Fracture Mechanics</td>
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<td>Fracture of modern engineering materials; linear-elastic fracture; computational methods; functionally graded materials; elastic-plastic fracture; multiscale fracture and fatigue crack initiation. Prerequisites: 058:113, 058:115, and 058:159. Same as 053:250.</td>
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<tr>
<td>058:251</td>
<td>Computational Inelasticity</td>
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Computational techniques and implementations for elastic, hyperelastic, elasto-plastic, visco-elastic, and viscoplastic material models; development of sound numerical integration algorithms from rate constitutive equations. Prerequisite: 053:241. Same as 053:243.

058:252 Advanced Continuum Mechanics 3 s.h.
Continuum mechanics of fluids and solids, balance laws, invariance restrictions, continuum thermodynamics, constraint theory, mixtures, materials with microstructure. Prerequisite: 058:262 or 058:279. Same as 053:247.

058:253 Computational Methods in Dynamics 3 s.h.
Computational methods for three-dimensional multirigid body systems; spatial kinematics and dynamics; constrained and recursive dynamics for closed-loop multi-chain systems. Prerequisite: 058:154.

058:254 Energy Principles in Structural Mechanics 3 s.h.
Principles of virtual work; stationary and minimum potential energy; calculus of variations; Ritz method, Galerkin's method; beams, plates; Hamilton's principle; elastic stability; extremum principle of plasticity. Prerequisites: 058:113 and 058:150. Prerequisites: (for 053:244) 053:113 and 053:140. Same as 053:244.

058:255 Multiscale Modeling 3 s.h.
Computational modeling of engineering materials ranging from molecular to continuum scales, molecular dynamics and Monte Carlo methods, nanoscale continuum modeling, scale-coupling methods. Prerequisite: 058:115 or 058:143. Same as 053:249.

058:256 Computational Solid Mechanics 3 s.h.
Advanced computational methods for nonlinear and dynamic analysis of solids, structures; new space- and time-discretization methods for problems, including highly nonlinearities, large deformation, contact/impact conditions. Prerequisites: 058:113 and 058:115, or equivalents, and graduate standing.

058:257 Probabilistic Mechanics and Reliability 3 s.h.
Stochastic and reliability analysis of mechanical systems; computational methods for structural reliability; random eigenvalue problem; random field and stochastic finite element methods. Prerequisites: 058:113 and 058:115.

058:258 Continuum Mechanics and Plasticity 3 s.h.
Finite strain measures and rate of deformation; principles of isotropy and materials indifference; constitutive equations of elastic and inelastic materials; internal variable theory of thermodynamics; endochronic theory of plasticity. Prerequisite: 053:241 or equivalent. Same as 053:246.

058:259 Mechanical Design in Structures 3 s.h.
Discrete and continuum variational equilibrium equations, discrete design sensitivity analysis for static responses and eigenvalues, interactive design workstation, continuum sizing design sensitivity analysis for static responses and eigenvalues, design sensitivity analysis of structural dynamics, differentiability theory, shape optimal design, shape design sensitivity analysis, design sensitivity of nonlinear structural systems. Prerequisites: 058:113, 058:115, and 058:150.

058:279 Continuum Mechanics and Elasticity 3 s.h.
Cartesian tensors and geometrical foundations; concept of stress, strain, motion; fundamental physical laws; constitutive equations and finite elasticity; equations of linear elasticity, elastic extension, torsion and bending of bars. Prerequisite: 057:019. Corequisite: 053:113 or graduate standing. Same as 053:241.

058:295 Advanced Topics in Mechanical Systems 3 s.h.
Advanced contemporary topics in mechanical systems engineering not covered in other courses and determined by student/faculty interest.

Graduate Seminars, Advanced Topics, Research

058:191 Graduate Seminar: Mechanical Engineering 0 s.h.
Presentation and discussion of recent advances and research in mechanical engineering by guest lecturers, faculty, students. Prerequisite: graduate standing.
058:195 Contemporary Topics in Mechanical Engineering
New topics in fluid and thermal sciences and mechanical systems not covered in other courses; topic and coverage
determined by student/faculty interest. Prerequisite: junior standing.

058:198 Individual Investigations: Mechanical Engineering
Individual project in mechanical engineering, for department graduate students; laboratory study, engineering design
project, analysis and simulation of an engineering system, computer software development, research. Prerequisites:
graduate standing and consent of advisor.

058:199 Research: Mechanical Engineering M.S. Thesis
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for M.S. with
thesis in mechanical engineering. Prerequisites: graduate standing and consent of advisor.

058:299 Research: Mechanical Engineering Ph.D. Dissertation
Experimental and/or analytical investigation of an approved topic for partial fulfillment of requirements for Ph.D. in
mechanical engineering. Prerequisite: consent of advisor.
Graduate College

Dean: John C. Keller
Associate deans: Daniel Berkowitz, Minnetta Gardinier, Dale Eric Wurster
Web site: http://www.grad.uiowa.edu

The University of Iowa has been a leading center of advanced study for more than a century. Presently, the Graduate College accounts for nearly one-fifth of the University's total enrollment. This high ratio reflects the breadth of the University's graduate programs and resources, the strength of a graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research assistantship funds, the college encourages research and strengthening of departments. In cooperation with the Office of the Vice President for Research, it offers assistance to individual faculty members in finding the resources necessary for research projects, and it works with the other colleges and departments of the University to formulate policies concerning selection, supervision, and support of graduate students.

The faculty of the Graduate College is made up of all University tenure-track faculty members at the ranks of assistant professor, associate professor, and professor. A 17-member Graduate Council, elected from and by the graduate faculty and the Graduate Student Senate, is the executive committee of the graduate faculty and is advisory to the dean of the Graduate College.

Degrees Offered

The Graduate College confers the Master of Arts (M.A.), Master of Science (M.S.), Master of Accountancy (M.Ac.), Master of Arts in Teaching (M.A.T.), Master of Computer Science (M.C.S.), Master of Fine Arts (M.F.A.), Master of Health Administration (M.H.A.), Master of Physical Therapy (M.P.T.), Master of Public Health (M.P.H.), Educational Specialist (Ed.S.), Master of Science in Nursing (M.S.N.), Master of Social Work (M.S.W.), Doctor of Philosophy (Ph.D.), Doctor of Musical Arts (D.M.A.), Doctor of Nursing Practice (D.N.P.), Doctor of Physical Therapy (D.P.T.), and Doctor of Audiology (Au.D.) degrees.

The college currently confers degrees in the following major fields.

Accounting: M.Ac.**
African American World Studies: M.A.*
American Studies: M.A.*, Ph.D.
Anatomy and Cell Biology: M.S., Ph.D.
Anthropology: M.A.*, Ph.D.
Applied Mathematical and Computational Sciences: Ph.D.
Art: M.A.*, M.F.A.
Art History: M.A.*, Ph.D.
Asian Civilizations: M.A.*
Astronomy: M.S.*
Biochemistry: M.S., Ph.D.
Biology: M.S.*, Ph.D.
Biomedical Engineering: M.S.*, Ph.D.
Biostatistics: M.S.*, Ph.D.
Business Administration: M.A.*, Ph.D.
Chemical and Biochemical Engineering: M.S.*, Ph.D.
Chemistry: M.S.*, Ph.D.
Civil and Environmental Engineering: M.S.*, Ph.D.
Classics: M.A.**, Ph.D.
Clinical Investigation: M.S.*
Communication Studies: M.A.*, Ph.D.
Community and Behavioral Health: M.S., Ph.D.
Comparative Literature: M.A.*, Ph.D.
Comparative Literature--Translation: M.F.A.
Computer Science: M.S.*, M.C.S.**, Ph.D.
Counseling, Rehabilitation, and Student Development: M.A.*, Ph.D.
Dance: M.F.A.
Dental Public Health: M.S.
Economics: M.A.*, Ph.D.
Educational Policy and Leadership Studies: M.A.*, Ed.S.**, Ph.D.
Electrical and Computer Engineering: M.S.*, Ph.D.
English: M.A.*, M.F.A., Ph.D.
Epidemiology: M.S.*, Ph.D.
Exercise Science: M.S.*, Ph.D.
Film and Video Production: M.A.*, M.F.A.
Film Studies: M.A.*, Ph.D.
Free Radical and Radiation Biology: M.S.*, Ph.D.
French: M.A.*, Ph.D.
French and Francophone World Studies: M.A.*, Ph.D.
Genetics: Ph.D.
Geography: M.A.*, Ph.D.
Geoscience: M.S.*, Ph.D.
German: M.A.*, Ph.D.
Greek: M.A.**
Health and Sport Studies: M.A.*, Ph.D.
Health Management and Policy: M.H.A.**, Ph.D.
Health Services and Policy: Ph.D.
History: M.A.*, Ph.D.
Human Toxicology: M.S., Ph.D.
Immunology: Ph.D.
Industrial Engineering: M.S.*, Ph.D.
Informatics: M.S.*, Ph.D.
Integrative Physiology: Ph.D.
International Studies, M.A.
Journalism: M.A.*
Latin: M.A.**
Leisure Studies: M.A.*
Library and Information Science: M.A.*
Linguistics: M.A.*, Ph.D.
Mass Communications: Ph.D.
Mathematics: M.S.*, Ph.D.
Mechanical Engineering: M.S.*, Ph.D.
Microbiology: M.S., Ph.D.
Molecular and Cellular Biology: Ph.D.
Molecular Biology: Ph.D.
Molecular Physiology and Biophysics: M.S.*, Ph.D.
Music: M.A.*, M.F.A., D.M.A., Ph.D.
Neuroscience: Ph.D.
Nursing: M.S.N.*, D.N.P., Ph.D.
Occupational and Environmental Health: M.S.*, Ph.D.
Operative Dentistry: M.S.
Oral and Maxillofacial Surgery: M.S.
Oral Science: M.S., Ph.D.
Orthodontics: M.S.
Pathology: M.S.
Pharmacology: M.S., Ph.D.
Pharmacy: M.S.*, Ph.D.
Philosophy: M.A.*, Ph.D.
Physical Rehabilitation Science: Ph.D.
Physical Therapy: M.A.*, D.P.T.
Physics: M.S.*, Ph.D.
Physiology and Biophysics: M.S.*, Ph.D.
Political Science: M.A.*, Ph.D.
Preventive Medicine and Environmental Health: M.S.*, Ph.D.
Psychological and Quantitative Foundations: M.A.*, Ed.S.**, Ph.D.
Psychology: M.A.*, Ph.D.
Public Health: M.P.H.**
Religious Studies: M.A.*, Ph.D.
Russian: M.A.***
Science Education: M.S., M.A.T.**, Ph.D.
Second Language Acquisition: Ph.D.
Social Work: M.S.W.*, Ph.D.
Sociology: M.A.*, Ph.D.
Spanish: M.A.*, Ph.D.
Speech and Hearing Science: Ph.D.
Speech Pathology and Audiology: M.A.*, Au.D.
Statistical Genetics: Ph.D.
Statistics: M.S.*, Ph.D.
Stomatology: M.S.
Teaching and Learning: M.A.*, M.A.T.**, Ph.D.
Theatre Arts: M.F.A.
Translational Biomedicine: M.S.**, Ph.D.
Urban and Regional Planning: M.A.*, M.S.*
Women's Studies: Ph.D.***

*Degree offered with or without thesis
**Nonthesis degree
***Student entry suspended

Interdisciplinary Degree Programs

The Graduate College participates in a number of University of Iowa interdisciplinary degree programs. Detailed information about the following master's and doctoral degree programs is provided later in this section of the Catalog: Applied Mathematical and Computational Sciences, Genetics, Human Toxicology, Immunology, Informatics, Library and Information Science, Molecular and Cellular Biology, Neuroscience, Second Language Acquisition, Translational Biomedicine, and Urban and Regional Planning.

In addition to the degree programs listed above, the graduate faculty has authorized the awarding of interdisciplinary master's and doctoral degrees. Students seeking approval for interdisciplinary master's and doctoral programs must previously have been admitted to and enrolled in a departmental program in the Graduate College. See sections X.A. and XII.D. in Manual of Rules and Regulations of the Graduate College on the college's web site or in this section of the Catalog.

Joint Degree Programs

Joint Law and Graduate Degrees

Joint programs under which students can pursue degrees simultaneously in the College of Law and the Graduate College have been developed with the law college and a number of departments in the Graduate College. See College of Law in the Catalog.

Joint Programs Offered Through the Graduate College

Various joint programs have been developed whereby students work simultaneously toward two advanced degrees. Consult the appropriate Catalog sections for more information. Established joint programs include business administration/library and information science; business administration/nursing; health management and policy/business administration; health management and policy/urban and regional planning; occupational and environmental health/urban and regional planning; public health/law; public health/medicine; public health/nursing; public health/pharmacy; public health/veterinary medicine; and social work/urban and regional planning.

Joint Au.D./Ph.D. in Speech and Hearing Science

The Graduate College, through the Department of Communication Sciences and Disorders, offers the joint Au.D./Ph.D. program. The program requires 137 s.h., allowing students to count 30 s.h. toward both degrees (the Au.D. requires 95 s.h., and the Ph.D. requires 72 s.h.). The program is a natural choice for students who are interested in practicing audiology but who also wish to pursue academic, tenure-track faculty positions in university settings. See Communication Sciences and Disorders (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S. in Biomedical Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in biomedical engineering. The program allows students to take a limited number of courses that count toward both the B.S.E. and M.S. degree requirements, to attend and participate in the departmental graduate seminar, and to work on a master's thesis or research project before they have been awarded a baccalaureate degree. See Biomedical Engineering in the Catalog.

Joint B.S.E./M.S. in Chemical and Biochemical Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in chemical and biochemical engineering. The program allows students to count 12 s.h. of course work, typically advanced chemistry sequences and electives, toward both the B.S.E. and M.S. requirements. See Chemical and Biochemical Engineering in the Catalog.
Joint B.S.E./M.S. in Civil and Environmental Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in civil and environmental engineering. The program allows students to take a limited number of courses that count toward both the B.S.E. and M.S. degree requirements, to attend and participate in the departmental graduate seminar, and to work on a master's thesis or research project before they have been awarded a baccalaureate degree. See Civil and Environmental Engineering in the Catalog.

Joint B.A./M.C.S. or B.S./M.C.S. in Computer Science

The Graduate College and the College of Liberal Arts and Sciences offer a joint B.A./M.C.S. or B.S./M.C.S. program in computer science. The program allows students to count 12 s.h. of course work, typically advanced technical courses and electives, toward both the bachelor's and the M.C.S. degree requirements. See Computer Science (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S. in Electrical and Computer Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in electrical and computer engineering. The program allows students to begin earning graduate credit while working toward the bachelor's degree (9 s.h. may be counted toward both the B.S.E. and M.S. requirements, and an additional 3 s.h. may be counted only toward the M.S. degree). They also may engage in thesis-level research. See Electrical and Computer Engineering in the Catalog.

Joint B.A./M.A. in German

The Graduate College and the College of Liberal Arts and Sciences offer a joint B.A./M.A. program in German. The program permits students to take 12 s.h. of course work that fulfills both B.A. and M.A. degree requirements and provides an opportunity for early entrance to advanced courses in German. See German (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S. in Industrial Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in industrial engineering. The program allows students to begin earning graduate credit (6 s.h. may be applied toward both the B.S.E. and M.S. degree requirements), to attend one of the department's graduate seminars, and to work on master's thesis research before they have been awarded a baccalaureate degree. See Mechanical and Industrial Engineering in the Catalog.

Joint B.A./M.A. in Linguistics

A joint B.A./M.A. program in linguistics with a specialization in Teaching English as a Second Language (TESL) is offered by the Graduate College and the College of Liberal Arts and Sciences. The program permits students to take a limited number of courses that fulfill both B.A. and M.A. degree requirements and provides for early entrance to advanced courses in linguistics. Joint B.A./M.A. students also may gain experience teaching ESL at the college level early in their graduate careers. See Linguistics (College of Liberal Arts and Sciences) in the Catalog.

Joint B.S.E./M.S. Mechanical Engineering

The Graduate College and the College of Engineering offer a joint B.S.E./M.S. program in mechanical engineering. The program allows students to begin earning graduate credit (6 s.h. may be applied toward both the B.S.E. and M.S. degree requirements), to attend a graduate seminar, and to participate in master's research before they have been awarded a baccalaureate degree. See Mechanical and Industrial Engineering in the Catalog.

Joint B.S.N./M.S.N. or RN-B.S.N./M.S.N.

The Graduate College and the College of Nursing offer a joint B.S.N./M.S.N. or RN-B.S.N./M.S.N. program that provides an avenue for exceptional B.S.N. students to progress rapidly toward completion of the M.S.N. degree. The joint program permits students to count 12 s.h. of course work, typically the four M.S.N. core courses, toward both the B.S.N. and the M.S.N. degree requirements. See College of Nursing in the Catalog.

Joint M.A./Certificate in Library and Information Science and Book Studies

The joint M.A. in library and information science and Certificate in Book Studies/Book Arts and Technologies prepares students for careers in special collections librarianship. The 51 s.h. program trains individuals to manage varied types of special collections, such as rare books, manuscripts, archives, graphics, music, and ephemera. Successful completion of the program is noted on the student's transcript. See Center for the Book and Library and Information Science (both Graduate College) in the Catalog.

Joint M.D./Ph.D. in the Medical Scientist Training Program

The Medical Scientist Training Program (MSTP) is an interdisciplinary M.D./Ph.D. program offered jointly by the Carver College of Medicine and the Graduate College. See Medical Scientist Training Program (Carver College of Medicine) in the Catalog.
Certificate Programs

The Graduate College participates in a number of University of Iowa certificate programs. See Rhetorics of Inquiry and Transportation Studies (both Graduate College) in the Catalog for detailed information about certificates in those programs.

Advanced Practice Nursing

The post-master's degree Certificate in Advanced Practice Nursing allows for advanced clinical training in four specialty tracks: pediatric nurse practitioner, adult/gerontology nurse practitioner, family nurse practitioner, and psychiatric/mental health nursing. Certificate requirements include advanced clinical core courses and a sequence of specialty courses. Successful completion of the specialty sequence qualifies a student to sit for certification as a nurse practitioner and/or a clinical nurse specialist. Completion of the certificate program is noted on the student's transcript. See College of Nursing in the Catalog.

Aging Studies

The Aging Studies Program is a multidisciplinary nondegree certificate program administered by the College of Liberal Arts and Sciences in cooperation with other University of Iowa colleges. The 21 s.h. program is designed to complement graduate degree programs for students with academic, professional, research, or service career interests in aging. Successful completion of the Certificate in Aging Studies is noted on the student's transcript. See Aging Studies (College of Liberal Arts and Sciences) in the Catalog.

Agricultural Safety and Health

The Certificate in Agricultural Safety and Health is a postbaccalaureate program for practicing health care professionals serving rural areas, and health professions students who intend to practice in rural areas. The 12 s.h. program is designed to help rural health professionals address safety and health issues in farm settings. Successful completion of the program is noted on the student's transcript. See Occupational and Environmental Health (College of Public Health) in the Catalog.

American Indian and Native Studies

The American Indian and Native Studies Program (AINSP) offers an interdisciplinary certificate program focusing on the histories, cultures, languages, arts, religious traditions, political and social organizations, economies, geographies, literatures, and contemporary legal and political concerns of Native Americans of the United States as well as other indigenous peoples of the Western Hemisphere. Successful completion of the Certificate in American Indian and Native Studies is noted on the student's transcript. See American Indian and Native Studies (College of Liberal Arts and Sciences) in the Catalog.

Book Studies/Book Arts and Technologies

The Certificate in Book Studies/Book Arts and Technologies offers an interdisciplinary approach to studying the relationship between the book in culture and the arts and technologies of book production. It also provides opportunities for artistic and craft-based studio, laboratory, and research investigations. The certificate may be earned in conjunction with graduate degrees in art, English, history, library and information science, and other disciplines. Successful completion of the program is noted on the student's transcript. See Center for the Book (Graduate College) in the Catalog.

Clinical Investigation

The Certificate in Clinical Investigation is designed for clinicians who seek advanced training in clinical methodology and applied patient-oriented research skills. Certificate requirements include didactic course work, clinical research preceptorships, and clinical research seminar participation. Students in the certificate program must be practicing academic clinicians who have completed doctoral training. Successful completion of the program is noted on the student's transcript. See Carver College of Medicine and College of Public Health in the Catalog.

College Teaching

The Certificate in College Teaching provides overarching administration and structure that complements discipline-oriented graduate teaching preparation programs. The 12 s.h. program has three parts: course work, teaching experience, and preparation of a teaching portfolio. The program is open only to graduate students enrolled in degree programs. Successful completion of the program is noted on the student's transcript. Formal application is made through the College of Education.

Emerging Infectious Disease Epidemiology

The Certificate in Emerging Infectious Disease Epidemiology is a post-baccalaureate program designed to meet the training needs in emerging infectious disease of international public health professionals as well as graduate students.
at The University of Iowa. The 12 s.h. program requires one short term, intensive on-campus session, coupled with year-round, web-based, distance-learning course work. Successful completion of the program is noted on the student's transcript. See College of Public Health in the Catalog.

Global Health Studies

The interdisciplinary Global Health Studies Program emphasizes international health problems and solutions in the developing and developed worlds, including the United States. Requirements for the Certificate in Global Health Studies include core courses, electives, foreign study and/or internship, a research project, and foreign language skills. Students do not need special health science courses to participate. Completion of the certificate program is noted on the student's transcript. Both the College of Liberal Arts and Sciences and the Graduate College award a Certificate in Global Health Studies. See Global Health Studies (College of Liberal Arts and Sciences) in the Catalog.

Informatics

The Certificate in Informatics is an interdisciplinary collaboration that offers formal subtracks in health informatics, information science, and bioinformatics and computational biology. Graduate students working toward a degree may earn the certificate, which requires a minimum of 18 s.h., including 9 s.h. earned in foundations of informatics and 9 s.h. earned in disciplinary applications of informatics. Completion of the certificate program is noted on the student's transcript. For more information, see Informatics (Graduate College) in the Catalog.

Nursing Informatics

The Certificate in Nursing Informatics focuses on data, information, and knowledge of management in nursing. It familiarizes students with the development, support, and evaluation of applications, tools, processes, and structures that help nurses manage data in direct patient care and administrative and management support systems. The program is available for master's, post-master's, doctoral, and postdoctoral students. Completion of the certificate program is noted on the student's transcript. See College of Nursing in the Catalog.

Sacred Music

The Certificate in Sacred Music is an interdisciplinary program with course offerings in sacred music, choral conducting/literature, keyboard, voice, religion, and art and art history. Students may earn the 25 s.h. certificate while working toward a graduate degree; or with prior admission to the Graduate College and consent of the faculty advisor for the certificate, they may complete the certificate apart from pursuit of a graduate degree. Successful completion of the certificate program is noted on the student's transcript. See Music (College of Liberal Arts and Sciences) in the Catalog.

Affiliated Programs

Film and Critical Studies in Paris

The University of Iowa is one in a consortium of 21 colleges and universities associated with the Council on International Educational Exchange (CIEE), which sponsors the Film Studies Program and the Contemporary Criticism and Culture Program. These are two unique academic opportunities offered at the Centre Universitaire Américain du Cinéma et de la Critique à Paris.

The Film Studies Program is designed to explore film theory and analysis—not to train filmmakers or technicians. The curriculum provides courses and seminars in film theory, formal structures, history, and ideology. Participants study the relationships between film and other art forms, film culture, film and language, and film and psychoanalysis. Students discuss the evolution of the early cinema; the silent films of Griffith, Lang, Eisenstein, and Keaton; the classic Hollywood film; French cinema during and after the transition to sound; and European and American avant-garde cinemas. Participants study the works of Metz, Freud, Barthes, Lacan, Althusser, Foucault, and others to gain an understanding of contemporary French culture, mass media, and the visual arts.

The Contemporary Criticism and Culture Program focuses on recent developments in French political thought and social institutions, linguistics, social sciences, and literary theory. It draws on recent theoretical concepts in the fields of linguistics, psychoanalysis, anthropology, history, and philosophy to analyze verbal and audiovisual representations in literature, painting, photography, film, and television. The interdisciplinary nature of this program makes it relevant not only to French majors but also to students of other disciplines concerned with the problems of criticism and culture. It is of particular value to those who want to explore the applicability of modernist French theory to a variety of disciplines.
The program also permits specialization in history, characterized by the application to historical research of insights from other fields, such as linguistics, cultural geography, anthropology, sociology, and economics. Particularly distinctive in the French historical approach has been a preoccupation with the long-term evolution of populations and the social, economic, and cultural development of groups of ordinary people, seen in their urban or regional contexts.

Students may concentrate in one of these programs entirely or develop an individual program combining elements from both study center components.

Participating students are registered in the University of Paris III—Censier and are eligible to take selected courses within the University of Paris as well as those sponsored directly by the center. The program is open to both undergraduate and graduate students from the University of Iowa. For more information, contact the Department of Cinema and Comparative Literature.

**Office of Graduate Ethnic Inclusion**

The Office of Graduate Ethnic Inclusion (OGEI) is dedicated to providing academic assistance to graduate students from underrepresented populations across graduate programs; to helping build a sustainable practice of inclusion that nourishes and attracts underrepresented graduate students campus wide; and to helping build community through individual and group activities focused on successful academic progress.

OGEI’s specific goals are to increase numbers of underrepresented ethnic minorities in graduate programs; increase the number of doctoral students among U.S. ethnic minorities in graduate programs at Iowa; create a department-centered effort of graduate ethnic inclusion; offer support to University of Iowa departments and programs that are interested in building, extending, or sustaining their practices of ethnic inclusion; support faculty-based efforts for recruiting top graduate scholars who are underrepresented ethnic minorities; provide mentoring and support for students throughout their degree programs; and provide information on grant opportunities for departments and programs that are pursuing graduate ethnic inclusion.

**Women in Science and Engineering**

Women in Science and Engineering (WISE) is dedicated to expanding and improving educational and professional opportunities for women in STEM disciplines (science, technology, engineering, and mathematics). The program aims to provide academic support, promote professional development, facilitate research opportunities, engage in community outreach, and encourage global cooperation.

WISE provides academic support by promoting activities that motivate and encourage undergraduate and graduate students to complete degrees and pursue careers in scientific and technical fields. It supports the recruitment and retention of women students, staff, and faculty and the full participation of women and precollege girls in gender-equitable educational programs that focus on science and engineering. The program facilitates professional development by promoting activities that empower women scientists, engineers, mathematicians, and health professionals to achieve success and assume leadership positions in their careers.

WISE encourages global cooperation by supporting activities that prepare women to enter the international STEM workforce, that support academic partnerships with foreign institutions, and that encourage scholarship and professional development of foreign women in STEM disciplines on the University of Iowa campus.

For more information on WISE goals and activities including the WISE learning community, WISE ambassadors, the Eunice Beam WISE travel grants, professional development workshops, and the WISE library and newsletter, visit the Women in Science and Engineering web site (http://www.uiowa.edu/~wise).

**Research Resources**

Many of the University’s diverse research activities are centrally administered by the Office of the Vice President for Research, which has a cooperative relationship with the Graduate College.

**Financial Support**

Approximately half of the University's graduate students receive some form of University-administered financial assistance. For eligibility requirements and application procedures, see “Section VII. Graduate Appointments” in the Manual of Rules and Regulations of the Graduate College. The following are the primary sources of assistance.

**Teaching and Research Assistantships**

Teaching and research assistantships are available in most departments. Assistantship stipends typically range between $16,575 for a half-time academic-year appointment and $20,258 for a half-time fiscal-year appointment;
assistants also are eligible for tuition scholarships. Assistants (one-quarter-time or more) are classified as residents for fee purposes.

**Iowa Arts Fellowships**

Iowa Arts Fellowships are for first-year University of Iowa graduate students entering M.F.A. programs. Typical stipends are $18,000 for the academic year, with all tuition and fees paid, for as many as two years (the second year being contingent on demonstrated exceptional progress toward completion of the M.F.A.). There are no departmental service obligations.

**Iowa Performance Fellowships**

Iowa Performance Fellowships are for first-year D.M.A. candidates in a performance area of music. Recipients are nominated by the School of Music. Awards include academic-year fellowships ($15,000 year one, $7,255 years two and three), summer fellowships ($2,000 years one and two), and all tuition and fees. The School of Music provides a one-quarter-time research assistantship in years two and three.

**Dean's Graduate Fellowships**

Dean's Graduate Fellowships are awarded to first-year graduate students from underrepresented ethnic minority groups. Doctoral students receive an annual stipend of $21,500 plus tuition and fees for the first and last years; a 1/2-time research assistant or teaching assistant stipend, a $4,000 summer stipend, plus tuition and fees for years two and three. Master's students receive an annual stipend of $19,500 plus tuition and fees for up to two years.

**Presidential Graduate Fellowships**

Presidential Graduate Fellowships provide five-year awards for doctoral students on a year-round basis. Fellows receive an annual stipend of $23,500 ($18,000 per academic year in addition to a $5,500 summer stipend), plus full tuition and fees for years one and four; a research assistant or teaching assistant stipend during the academic year, plus $5,500 summer stipend and full tuition and fees for years two and three. In their final year, awardees receive an academic year stipend of $19,500, a summer stipend of $5,500, plus all tuition and fees paid. Recipients have no assignments and are free to pursue their own studies, research, and writing full-time for three of the five years and all five summers.

**Graduate College Summer Fellowships**

Graduate College Summer Fellowships are for advanced doctoral students who have academic-year appointments and have completed at least two years in a graduate program at The University of Iowa at the time of application for the award. Priority is given to postcomprehensive students. Awards provide a summer stipend of $3,000 plus tuition and standard fees for up to 2 s.h. Awardees must enroll for the six-week or eight-week summer session; enrollment in the three-week summer session does not qualify.

**T. Anne Cleary International Research Fellowships**

The T. Anne Cleary International Research Fellowships are for doctoral students who have completed their comprehensive examinations. They are to be used for dissertation research outside the United States. The awards vary from $1,500 to $5,000 and are meant to supplement other research funds. Doctoral students in any discipline may apply.

**Seashore and Ballard Dissertation Fellowships**

Seashore and Ballard Dissertation Fellowships are for doctoral students in the humanities and social sciences who have completed all doctoral degree requirements except their dissertation. Recipients are nominated by their departments. Fellowships provide $18,000 for the academic year and a $4,000 summer stipend, plus tuition for up to 2 s.h., fees, and a health insurance allowance.

**Scholarships**

Scholarships provide up to full tuition and fees.

**GRADUATE STUDENT TRAVEL AWARDS**

Graduate student travel awards provide reimbursement for travel by students who present research and scholarship results to professional conferences. Awards are competitive across disciplines and vary from $200 to $400. Funds are administered by the Graduate Student Senate and the Graduate College.

**Other Sources**

For other sources of financial support, contact the Office of Student Financial Aid.

Many departments offer additional support through traineeships, part-time employment in research, or part-time teaching appointments. The Office of the Vice President for Research maintains a library of information on public and
private agencies that provide funds for research and graduate study. Much material has been collected concerning awards for overseas study.

**Graduate Student Senate**

The Graduate Student Senate is the University graduate student body representative organization. Representatives are elected annually from each University department that has a graduate degree program. The senate’s primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the college.

**Manual of Rules and Regulations of the Graduate College**

The following text is from the *Manual of Rules and Regulations of the Graduate College*. The most up-to-date version of this manual is available online; see "For Students" on the Graduate College web site.

**The Academic Program**

Section I. Admission to the Graduate College

A. APPLICATION PROCEDURE

All students seeking to register for the first time in the Graduate College of The University of Iowa must secure formal admission from the director of Admissions. Applicants may obtain the proper forms from the Office of Admissions. Prospective students may also download the application or apply online from the admissions web site.

In addition to these forms, official transcripts, test scores, and other supporting material must be submitted by the designated deadline prior to the session in which admission is expected. Specific deadline dates will be established by the dean of the Graduate College and the director of Admissions and printed in the Catalog and elsewhere.

B. ADVANCED MEASUREMENT TESTS

Each graduate program will determine which, if any, advanced measurement test(s) will be required of the applicants to the program. Examples of such examinations include the General (Aptitude) Test of the Graduate Record Examination (GRE), the GRE Subject (Advanced) Tests, and the Graduate Management Admission Test (GMAT). For those departments or programs that choose to require an examination, the examination must be required for all students; there cannot be exempt categories. Additionally, a final admission decision will not be made by the Office of Graduate Admissions until the student's scores have been received. The judgment of acceptable levels of performance on these tests, and the weight of such scores in the overall decision-making process, is left to the department or program.

C. ENGLISH FOR INTERNATIONAL STUDENTS

Prior to consideration for admission, international student applicants whose native language is other than English must take and pass either the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. These examinations are given at various times of the year and in many centers throughout the world.

International students transferring from unfinished degree programs of other universities in the United States who have not taken either of these examinations, or who have received a score lower than the minimum established by the Graduate College dean, must take the TOEFL or IELTS examination and receive a passing score prior to consideration for admission.

Students who barely pass the established minimum on the TOEFL, as well as all IELTS submitters, will be required to sit for an English evaluation upon arrival in Iowa City. The Graduate College will require these students to take and pass recommended course work in English usage at The University of Iowa designed especially for international students.

D. EARLY ADMISSION

A student who is within 6 s.h. of having satisfied all the requirements for the bachelor's degree at The University of Iowa or any other accredited college may be given provisional admission.

E. CANDIDACY
Admission to the Graduate College is not the equivalent of acceptance as a candidate for an advanced degree, which must be earned through work successfully completed at The University of Iowa. (See “Section X. Master's Degrees” and “Section XII. Doctor's Degrees.”)

F. DECLARATION OF MAJOR AND DEGREE

Every applicant for admission must indicate on the application form the department or program of major interest and the degree, certificate, or professional objective he or she intends to pursue. The only exceptions to this regulation are the limited number of applicants registered as nondegree (“special”) students. (See definition of nondegree status in next section.) Changes in the major or degree status may be made in the course of a student's graduate study with the approval of the department to which the transfer is proposed. To initiate such action, the student must file a change of major or degree status in the Office of Admissions.

G. ADMISSION REQUIREMENTS AND STATUS

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. Upon admission, all students fall into one of the following three categories:

1. Regular—For students who have met the minimum requirements for admission and who have been accepted by a department, or interdepartmental degree program, for work leading to a graduate degree or certificate or for professional improvement. The minimum g.p.a. for admission as a regular student to all graduate programs is 3.00. Departments or programs may petition the Graduate College dean for admission of a student whose g.p.a. is lower than 3.00, if there is sufficient evidence of the student's academic and/or professional achievement indicating his/her potential for success in a graduate program.

Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the Graduate College as a whole. Information concerning departmental or program requirements may be obtained directly from the executive of the department concerned.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted on a conditional basis, the student must be recommended by a department, which will assume responsibility for advising him or her. The student on conditional status must achieve regular status within two sessions of registration in the Graduate College by attaining a g.p.a. of at least 3.00 and acceptance by the major department, or be dismissed.

3. Nondegree (Special)—Students with a valid bachelor's degree and at least a 2.50 g.p.a. are eligible to register for a total of no more than two courses per semester. In addition, a nondegree student may not accumulate more than two courses within a given department/program under this classification. These students must be approved for admission by the Graduate College and the Office of Admissions. Nondegree graduate students are not eligible for a graduate degree.

H. ADMISSION OF FACULTY MEMBERS TO GRADUATE STUDY

Persons who hold faculty rank of assistant professor (including clinical assistant professor) or above at The University of Iowa may be admitted as nondegree students. (See "Section G" above.) A person holding faculty rank as specified above may petition the Graduate College dean for permission to enter a departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or a closely related department. Such petitions must have prior approval of the department of appointment, dean of the college of appointment, the department in which study is to be pursued, and the Graduate College.

I. READMISSION

If a student's enrollment is interrupted for any reason so that she or he is not enrolled for three consecutive academic sessions (including the spring, summer, and fall sessions but excluding the winter session), the student must apply for readmission. The readmission application form must be used. The Graduate College will not require new letters of recommendation, a new Personal Statement section, a written explanation of the reasons for the absence, or a plan for degree completion. However, departments and programs may choose to require any or all of the foregoing.

Section II. Registration

A. STANDARD SCHEDULE

Students registered in the Graduate College may register for no more than 15 s.h. in all courses eligible for graduate
credit (100-level or above). A maximum, graduate semester-hour registration will include all courses numbered 100 or above, whether they are offered as on-campus, extension, or workshop classes. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit may be substituted for 1 s.h. of graduate credit, with registration limited to a total of 18 s.h. This equivalency applies to the calculation of academic load only. Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is 8 s.h. Corresponding maximums for the three-week summer and winter sessions and the six-week summer session are 3 or 6 s.h., respectively.

The maximum semester-hour registration for work scheduled outside of the regular eight-week summer session will be arranged on a basis proportionate to that stated above with the approval of the Graduate College dean. In the regular semester, 9 s.h. constitutes full-time registration. (Fellows are required to carry at least 9 s.h. during a semester as a condition of their appointments.) One-quarter-time and one-third-time appointees are permitted to register for the maximum 15 s.h. per semester and 8 s.h. during the eight-week summer session.

B. COURSES NOT INCLUDED IN FULL REGISTRATION

In addition to a full schedule, a graduate student may register for offered courses carrying 0 s.h. of credit.

C. CHANGES IN ANNOUNCED CREDIT

Graduate students may not register for more credit than that offered for any course, but may register for less credit, or no credit, by permission of the instructor. The number of courses a graduate student may take for limited or no credit is subject to the consent of the advisor and the approval of the dean of the Graduate College.

D. REDUCED SCHEDULES FOR TEACHING AND RESEARCH ASSISTANTS AND OTHER APPOINTEES

1. One-half-time appointees may register for not more than 12 s.h. during a semester or 6 s.h. during the eight-week summer session.

2. Five-eighths-time appointees may register for not more than 10 s.h. during a semester or 5 s.h. during the eight-week summer session.

3. Two-thirds- and three-quarter-time appointees may register for not more than 9 s.h. during a semester or 5 s.h. during the eight-week summer session.

4. Seven-eighths-time appointees may register for not more than 7 s.h. during a semester or 4 s.h. during the eight-week summer session.

5. Full-time appointees, including full-time instructors, may register for not more than 6 s.h. during a semester or 3 s.h. during the eight-week summer session.

E. RETROACTIVE REGISTRATION

No form of retroactive registration is permitted.

F. REGISTRATION FOR PART OF A SESSION

A graduate student may register at any time during the semester or the eight-week summer session for not more than 1 s.h. of credit for each of the remaining weeks of classes (not including the examination period) in the term. The total registration may not exceed the 15 s.h. permitted for a semester and the 8 s.h. permitted for the eight-week summer session. Registration after the last day of the second week of a semester or the third day of the second week of a summer session is permitted only in courses involving special projects, readings, individual study, thesis, or research, with the signed approval of the instructor concerned and the Graduate College dean. Proportional credit limitations and deadlines for the three-week and six-week summer sessions will be established on a prorated basis.

G. EXTRAMURAL REGISTRATION

After admission to a departmental program in the Graduate College, registration for work done off campus may be accepted for residence credit under the following circumstances:

1. Traveling Scholar Program of the Committee on Institutional Cooperation (see "Section III").

2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.

3. Fieldwork as part of a regularly scheduled course or research program.

4. Courses taught off campus by members of the graduate faculty (see "Section X.D" and "Section XII.C" for minimum semester hours required on campus for the master's and doctor's degrees).
5. Residence graduate credit from another Iowa Regents' university (see "Section V.B").

6. As many as 9 s.h. of graduate work taken at the Quad Cities Graduate Center from faculty other than faculty of the Iowa Regents' universities, provided the work is acceptable to the student's major department for the specified degree.

Extramural registration does not count toward residence credit in the following circumstance:

Course work transferred from another institution.

H. SYSTEM OF COURSE NUMBERS

Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credit for both graduate and undergraduate students are numbered from 100 to 199. A student must be enrolled in the Graduate College in order to earn graduate credit for course work numbered 100 or above. Courses below 100 are not accepted for graduate credit irrespective of a student's classification. Graduate credit may not be earned for taking courses numbered below 100 by registering in such courses as readings, special projects, or independent study having course numbers of 100 or above.

I. AUDITING OF COURSES

Upon approval of the instructor and the advisor, graduate students may audit courses for zero credit. Fee assessment for auditing courses is based on the number of hours for which the course is offered, with a minimum of 1 s.h. Auditing is permitted only for a student who is currently registered. See "Section VI.C" for the marking system.

J. DROPPING OF COURSES

All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is withdrawn. This regulation may be waived by the Graduate College dean only on the recommendation of the Student Health director or the Counseling Service. If a student withdraws registration after the deadline date, the student must obtain permission from the dean of the Graduate College before being permitted to reregister.

Section III. Traveling Scholar Program

A. PURPOSE

The program, under the auspices of the Committee on Institutional Cooperation representing 12 universities in the Midwest, enables a doctoral student to take advantage of special resources available on another campus but not available on his or her own campus: special course offerings, research opportunities, unique laboratories, and library collections.

B. PROCEDURE

1. A CIC Traveling Scholar first must be recommended by his or her own graduate advisor, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.

2. After agreement by the student's advisor and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the advisor and have the power to approve or disapprove.

3. A CIC Traveling Scholar will be registered at the home university, and fees will be collected and kept by that institution.

4. Credit for the work taken will be recorded at the home university.

5. Those desiring additional information should inquire at the office of the Graduate College.

C. CONDITIONS

CIC Traveling Scholars will normally be limited to two semesters or three quarters on another campus. Each university retains its full right to accept or reject any student who wishes to study under its auspices.

Section IV. Academic Standing, Probation, and Dismissal

A. NONDOCTORAL STUDENTS

A nondoctoral departmental (master's, professional improvement, certificate) student, except one on conditional status, shall be placed on probation if, after completing 8 s.h. of graduate work, the student's cumulative grade-point average
on graduate work done at The University of Iowa falls below 2.75. If, after completing 8 more s.h. of graduate work at this University, the student's cumulative grade-point average remains below 2.75, the student shall be denied permission to reregister within any departmental program; otherwise the student shall be restored to good standing.*

Nondoctoral, nondepartmental (nondegree, extension, workshop) students shall be evaluated for probation and dismissal purposes based on the same semester-hour sequence as stated above, at a minimum cumulative grade-point average of 2.50.

*This requirement shall apply to students entering nondoctoral departmental programs beginning with the fall 2001 semester. A minimum cumulative grade-point average of 2.50 is required of nondoctoral departmental students admitted prior to that session.

B. DOCTORAL STUDENTS

A doctoral student on regular status shall be placed on probation if, after completing 8 s.h. of graduate work, the student's cumulative grade-point average on graduate work done at The University of Iowa falls below 3.00. If, after completing 8 more s.h. of graduate work at this University, the student's cumulative grade-point average remains below the required level, the student shall be dropped from the program and denied permission to reregister unless the student applies and is accepted for a nondoctoral degree or certificate program. If, after completing the second 8 s.h., the cumulative grade-point average is at least 3.00, the student is returned to good standing.*

*This requirement shall apply to students entering doctoral programs beginning with the fall 1979 semester. A minimum cumulative grade-point average of 2.70 is required of students admitted to doctoral programs prior to that session.

C. RESTRICTION ON STUDENTS ON PROBATION

A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.

D. DEPARTMENTAL REGULATIONS AND DISSEMINATION OF INFORMATION

In addition to the above University-wide requirements, departments may establish further requirements which then determine the individual student’s standing with regard to probation and dismissal. To this end, each department or program shall compile a written list of standards and procedures for work in that area. These documents shall be on file in each departmental office and the office of the Graduate College dean. Copies are to be available for students in the departmental office, and departments shall make all reasonable efforts to inform students. Subsequent changes in standards or procedures shall be communicated by the department to each student and the Graduate College dean. Whenever departments revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations, departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental registration policies, departmental grade-point requirements, requirements for changing from one degree program to another within the department—especially from the master’s to the doctor’s—departmental probation and dismissal policies and procedures (see "E" following), and other matters as are appropriate. The nature of the departmental advisory system shall be explained to incoming students.

E. ACADEMIC PROGRESS, DEPARTMENTAL PROBATION, AND DISMISSAL PROCEDURES

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way(s) the student is failing to meet the standards. The student shall be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If conditions such as conditional admission or probation are imposed, the department shall give, at the time of its imposition, written explanation of this status and its time limits.

A student who will not be permitted to reregister for failure to meet standards shall be notified of this fact in writing with reasons for the action provided. Such dismissal may follow failure to meet conditions of admission, conditions of probation, pre-announced departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or formal evaluation. If a student judges the dismissal decision improper, the student has a right to review. Each department shall establish procedures for handling such reviews. The procedures are to be approved by the Graduate College dean and shall afford a fair and expeditious review. A description of these procedures shall be included in the departmental regulations described above. (See "Section IV.D."

F. PLAGIARISM BY GRADUATE STUDENTS
The Online Oxford English Dictionary (http://dictionary.oed.com/cgi/entry/50180578) defines "plagiarize" as follows, "to take and use as one's own (the thoughts, writings, or inventions of another person); to copy (literary work or ideas) improperly or without acknowledgement; (occas.) to pass off as one's own the thoughts or work of (another)." In practice, the exact definition of "plagiarize" or "plagiarism" is dependent upon the unique attributes of the creative work of a particular discipline. Thus, it is understood that different academic disciplines and cultures may have different interpretations as to the actual actions which constitute plagiarism. With this in mind, the Graduate College will operate in the following manner when a program or department discovers an act or acts of plagiarism on the part of a graduate student.

1) If the faculty members of a program or department determine that the transgression is not major, or else feel that there is a misunderstanding of the acts which constitute plagiarism, the program or department may wish to work with the student so as to prevent future occurrences of plagiarism on the part of that student. Written notification of the offense and the remediation for the offense must be sent to the Graduate College for inclusion in the student's file.

2) If the faculty members of a program or department discover an act (or acts) of plagiarism that is (are) sufficiently egregious that expulsion from the program is warranted, the student will be terminated from his or her graduate program for reasons of plagiarism. In this case, the student will be simultaneously terminated from the Graduate College of The University of Iowa. The program or department must notify the student of his or her termination in writing. All relevant facts, as well as the process for appealing the decision, must be contained in the termination letter. The Graduate College must receive a copy of the termination letter. If the graduate student resigns from the program to avoid being terminated for reasons of plagiarism, the student will be considered to have simultaneously resigned from the Graduate College.

The appeal process for students accused of academic misconduct is specified in The University of Iowa document, "Policies and Regulations Affecting Students, C. Academic Misconduct," which states: "Questions of academic dishonesty arising within the colleges of Medicine, Law, Pharmacy, and Dentistry, and the Graduate College are treated on an individual basis." "In the Graduate College, the questions [of academic dishonesty] are handled at the departmental level. If the departmental decision is appealed, the dean may appoint an appeals committee of faculty and students from a slate of nominees prepared by the Graduate Council and the Graduate Student Senate to recommend an appropriate course of action."

The appeal process must be initiated by the student. If the student wishes to appeal the department's or program's action, that appeal must be lodged with the Associate Dean for Academic Affairs of the Graduate College within 30 days of program or departmental dismissal.

G. GRADUATE COLLEGE REVIEW OF DEPARTMENTAL DISMISSAL

Questions involving judgment of performance will not be reviewed beyond the department level. If, however, the student feels there has been unfairness or some procedural irregularity concerning dismissal, the student may pursue a grievance according to the Academic Grievance Procedure (AGP) established by the Graduate College. The AGP is available in the Graduate College. The student should consult with the Graduate College prior to initiating an academic grievance.

Section V. Credits

A. TRANSFER OF GRADUATE CREDIT

Graduate work at other institutions will be entered on the student's permanent record by the Office of Admissions and a report of this action will be sent to the student and to his or her major department. Credit for these courses toward an advanced degree at Iowa must have the approval of the major department and the dean of the Graduate College. (See "Section X.E." and "Section XII.E.", Reduction of Old Credits.)

B. RESIDENCE TRANSFER CREDIT

After admission to a departmental program in the Graduate College, residence graduate credit from another Iowa Regents' university may be counted as residence credit at this institution, provided such work is acceptable to the student's major department on the basis of the department's determination of its applicability toward the degree. (See "Sections X.D." and "XII.C" for minimum semester hours required on campus for the master's and doctor's degrees, and "Sections X.E. and XII.E.", Reduction of Old Credits.)

C. GRADUATE CREDIT FOR VETERANS

Credit may be granted for studies pursued in war and military situations under such regulations as may be formulated by the national educational agencies and under such adaptation of standing rules as the Graduate Council may authorize from time to time to meet group or individual situations. The value of such credit in satisfying requirements
for a degree will be determined by the major department with the approval of the dean.

D. WITHDRAWAL OF REGISTRATION AND PROPORTIONAL CREDIT FOR STUDENTS ENTERING MILITARY SERVICE

1. Students who leave within the first six weeks of the semester receive no credit.
2. Students who leave within the period of seven to nine weeks receive one-half credit.
3. Students who leave within the period of 10 to 12 weeks receive two-thirds credit.
4. Grade reports for the one-half and two-thirds credit periods: (a) Instructors report grades only as satisfactory or unsatisfactory. (b) Credit is to be assigned on the basis of total registration minus thesis and seminar. (c) Courses are to be counted toward specific degree requirements only after the student returns and then only with the department's approval.
5. Students who complete the twelfth week receive full credit.
6. Grade reports for the full-credit period: (a) Grades are to be reported only at the end of the semester. (b) Credit is to be reported in specific courses.
7. In each instance, the instructor reports the student's credit, grade, and date of withdrawal. No credit is granted unless the student's work is satisfactory at the time of leaving.
8. The amount of credit in thesis and research registration is to be reported to the registrar by individual instructors on the above basis except that less or zero credit may be assigned.

Section VI. Marking System

A. MARKS CARRYING GRADUATE CREDIT


B. MARKS CARRYING NO GRADUATE CREDIT

These are D+, D, D-, F, I--incomplete, W--withdrawn without discredit, R--registered, and U--unsatisfactory.

C. AUDIT

R is assigned when a student registered for zero credit attends as an auditor throughout the course; if the student fails to meet the instructor's requirements for class attendance, W is assigned.

D. INCOMPLETE

The grade of I is to be used only when a student's work during a session cannot be completed because of illness, accident, or other circumstances beyond the student's control. In registrations for thesis, research, or independent study, the satisfactory/unsatisfactory grades may be applied. (See next paragraph, "E"). An incomplete will automatically be converted to an F at the end of the next full semester (summer and winter sessions excluded), even if the student does not enroll after the session the I was posted.

The specific deadline for the faculty's report on I grades to the registrar will be set by the Office of the Registrar for each session and printed in the academic calendar. Courses may not be repeated to remove incompletes; removal of an I is accomplished only through completion of the specific work for which the mark is given.

E. THESIS, RESEARCH, READINGS, INDEPENDENT STUDY, AND SPECIAL PROJECTS

Grades of S and U may be used for registrations in thesis, research, readings, independent study, and special projects. S--satisfactory means that the student receives credit for the work; U--unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. The type of grading system to be used in the above cases should always be mutually understood by the instructor and student.

F. GRADES OF S AND U

S and U may be used for courses taken by a graduate student outside the major department or interdepartmental degree program provided that the instructor of the course and the student's departmental advisor approve the registration. Arrangements for satisfactory/unsatisfactory grading in these courses are accomplished by filing a card
with appropriate signatures in the Registrar’s Office at the time of registration, or no later than the last day of the
second week of a semester or the third day of the second week of a summer session. No changes from letter grades
to satisfactory/unsatisfactory grades or vice versa will be allowed after these dates.

It is not the policy of the Graduate College to abandon the traditional letter grades described in this section; however,
in certain exceptional instances, departments having several areas of concentration involving widely differing types of
effort may request the permission of the Graduate Council to allow students majoring in one area to register in courses
in another area within the same department or program on a satisfactory/unsatisfactory basis. In these instances,
satisfactory/unsatisfactory cards will be used as described in the preceding paragraph.

G. COMPUTED GRADE-POINT AVERAGE

This is based only upon graduate work graded A+=4.33, A=4.00, A-=3.67, B+=3.33, B=3.00, B-=2.67, C+=2.33,
C=2.00, C-=1.67, D+=1.33, D=1.00, D-=0.67, and F=0. Although a grade of A+ has a value of 4.33 in computing a
student's g.p.a., the cumulative average is truncated so as not to exceed 4.00.

Section VII. Graduate Appointments

A. SCHOLARSHIPS

Scholarships are competitive and are awarded on merit.

1. Eligibility for graduate scholarships and fellowships will include but will not be exclusive to: (a) registration in the
Graduate College; (b) cumulative g.p.a. of at least 3.00; (c) a satisfactory rate of progress in completing the program
for the degree.

2. Preference will be given to candidates for the doctoral degree.

3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department
executive, director, or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship.
The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed.
Scholarships will be credited to the student's University account.

B. GRADUATE COLLEGE FELLOWSHIPS

Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding
academic records. Fellows must be registered as full-time students. The primary purpose of the awards is to permit an
advanced student to complete his or her dissertation or creative project and take the degree. Other terms of the award
will be established by the Graduate College dean in consultation with the Graduate Council.

C. FACULTY RESEARCH ASSISTANTSHIPS

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: to provide
research service to professorial members of the academic staff and to provide apprenticeship experience for graduate
students who are in training in research. Not more than 20 hours of service per week are required of a half-time
assistant. Other part-time service is scaled in proportion, and a limited academic schedule is permitted (see "Section
II.D"). Appointments ordinarily are made for the nine-month academic year, but appointments may be made for other
periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of
service rendered.

D. GRADUATE TEACHING ASSISTANTSHIPS

These assistantships serve two purposes: assistance in the instructional program of the University and the preparation
of future college teachers. In order to achieve both aims, scholastically superior graduate students who show
exceptional promise as teachers are selected for graduate teaching assistantships. All appointments are made by the
dean of the appropriate college on recommendation of the department.

E. ELIGIBILITY FOR SCHOLARSHIPS, FELLOWSHIPS, AND RESEARCH ASSISTANTSHIPS

Scholars, fellows, and faculty research assistants on the Graduate College budget must be registered as regular
students in good standing in order to hold such appointments. Appointments will be terminated when registration
and/or student status is terminated. In no instance may a student be promised or tendered an appointment until after
approval for admission to the Graduate College by the director of Admissions.

F. LOANS
Graduate students requiring financial assistance may apply for loans at the Office of Student Financial Aid.

G. OTHER FORMS OF SUPPORT

Many departments offer financial assistance in the form of traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The major areas in which the Graduate College offers degree programs are listed under “Degree Programs” at the beginning of this section of the Catalog.

Section IX. General Requirements for Advanced Degrees

A. APPLICATION FOR DEGREE

The student must file an application for an anticipated degree with the registrar by the deadline date printed in the Graduate College academic calendar for the session in which the degree will be conferred. The student must have the application signed by his or her advisor. Failure to file the application by the deadline date established by the Graduate College dean will result in postponement of graduation to a subsequent session.

B. ENROLLMENT IN FINAL SESSION

The student must be enrolled during the session in which the degree is to be conferred. Students who are away from the University campus during that session may meet this requirement by registering for independent study, research, or thesis hours according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for Doctoral Final Registration described in “Section XII.L” if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for Master's Final Registration if such registration is appropriate. Both the Doctoral Final Registration and Master's Final Registration require a 2 s.h. tuition/fee payment, and may be repeated if the degree requirements are not completed in this session. Registration in a course for which tuition/fees are not assessed (Cooperative Education Internship, for example) will not satisfy this requirement.

Section X. Master’s Degrees

A. KINDS OF DEGREES

The University of Iowa offers programs leading to the Master of Arts (M.A.) degree, Master of Science (M.S.) degree, and several professional master's degrees.

M.A. and M.S. degrees require mastery of methodologies and practices of research and scholarship of the discipline. A thesis describing original scholarship or research may be required. M.A./M.S. degrees may be designed either as preparation for entry into doctoral degree programs or to provide advanced study and accomplishment that serves a variety of career and other purposes. Degrees are awarded in many fields of study, or majors, consistent with conventions of the discipline (e.g., M.A. in Art, English, Psychology; M.S. in Chemistry, Mathematics, Physiology). (For complete list, see Section VIII.) M.A. and M.S. degrees require a minimum of 30 s.h., a final examination and, in some fields, a thesis.

Professional master’s degrees provide knowledge, perspectives, and skills required for professional practice. Some programs may include introduction to research or scholarship sufficient to allow application of current literature to practice. Professional master's degrees generally are indicated by a three- or four-letter designation; examples include the Master of Fine Arts (M.F.A.), Master of Social Work (M.S.W.), Master of Public Health (M.P.H.), Master of Science in Nursing (M.S.N.), Master of Accountancy (M.Ac.). (For complete list, see Section VIII.) Professional master's degrees require a minimum of 30 s.h. Some may require a final examination as well as a thesis, papers, projects, colloquia, internships, or other experiential-based activity typical of preparation for practice in the field.

A student may prepare a proposal for an interdisciplinary course of study, including the plan of study defining course work, examination requirements, a research plan, and a committee of at least three faculty members, with either the department most directly concerned or the Graduate College designated as the sponsor. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties or from the Graduate Council. The degree will be awarded in interdisciplinary studies (master's) stipulated in the approved graduate program and, parenthetically, the name of the sponsoring department.

B. PLAN OF STUDY

The applicant for a master's degree must file a plan of study approved by the advisor and the departmental executive
with the Graduate College within the session in which the degree is to be granted and by the deadline date printed in
the Graduate College academic calendar. If the session in which a student takes his or her final exam is earlier than
the session in which the degree is to be granted, the Plan of Study must be filed prior to the administration of the
student's final examination. The plan shall meet the requirements for the degree approved by the graduate faculty.
(See also "Section IV.D. Departmental Regulations and Dissemination of Information.")

C. MAJOR AND RELATED FIELDS

The plan of study should provide for reasonable concentration in the major field of interest and, subject to the approval
of the major department, may include related subjects from other departments.

D. ACADEMIC RESIDENCE REQUIREMENT

Of the minimum of 30 s.h. required for the degree, at least 24 s.h. must be completed under the auspices of The
University of Iowa after admission to a graduate department/program. Various forms of extramural registration may
qualify toward fulfillment of the aforementioned 24-hour residence requirement (see "Section II.G. Extramural
Registration") in addition to regular on-campus registration. Students who have elected or who are required to write a
thesis for conferral of their master's degrees, must complete at least 8 semester hours of the 24-hour, academic
residence requirement on campus. At the discretion of the department, the 8-semester hour, on-campus requirement
may be waived for nonthesis master's programs. Election of the waiver option is to be applied programmatically, and
not on a student-by-student basis, and must be formally conveyed to the Graduate College.

E. REDUCTION OF OLD CREDITS

Courses taken ten or more years prior to the session in which the master's degree is to be conferred must be
evaluated by the major department in order to determine the possible use of these credit hours within a student's plan
of study. The department, in turn, must send a letter of petition to the Graduate College, requesting the use of any or all
of these credits toward the fulfillment of degree requirements.

F. LIMIT ON PROFESSIONAL COURSES

Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be
credited to a graduate program leading to a master's degree if it is taken after the student has earned a bachelor's
degree or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work
accepted from the professional college must be directly related to the student's major field of study in the Graduate
College and be approved as a part of the plan of study by the student's advisor and the major department. Work
completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the
residence requirement for nondoctoral degrees in the Graduate College only when the student is registered in an
appropriate joint degree program.

G. TWO MASTER'S DEGREES

The granting by this university of two master's degrees simultaneously or in succession requires the satisfaction of all
requirements for each degree separately, including two theses where a thesis is required for each, and two
examinations, with a minimum combined total of 60 s.h. of graduate credit.

H. MASTER'S DEGREE WITH THESIS

Not more than 9 s.h. of credit for thesis research and writing shall be counted in satisfying the 30 s.h. minimum
requirement. The thesis may be a scholarly study or an artistic production.

Beginning with the Fall 2009 Semester all master's theses, excluding MFA theses, must be submitted to the Graduate
College in electronic format. MFA students will have the option of submitting hard-copy or electronic theses.

The first deposit of a thesis (an ETD or one hard copy of the MFA thesis), complete and in final typed form, must be
presented to the Graduate College for a check of formal characteristics by the first-deposit deadline date in the session
in which the degree is to be conferred. After approval by the Graduate College and by the thesis committee, the final
deposit of the thesis (an ETD or two, identical hard copies of the MFA thesis) must be deposited with the Graduate
College by the final deposit deadline date in the student's graduation session. Failure to submit the first and final
deposits of the thesis by the deadline dates established by the Graduate College will result in the postponement of
graduation to a future session. [For detailed submission and formatting requirements, see Theses & Dissertations
under Policies & Deadlines on the Graduate College web site.]

Nonrefundable fees are charged each thesis candidate to cover processing and publication costs of the thesis.

The thesis committee shall consist of at least three members of the graduate faculty and may or may not be identical
to the final examination committee. (The final examination committee for the master's degree shall consist of at least three members of the graduate faculty, at least two of whom are from the major department. See "X.K. Examining Committee.")

I. MASTER'S DEGREE WITHOUT THESIS

A master's degree without thesis, consisting of at least 30 s.h. of graduate work, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. FINAL EXAMINATION

The requirements for master's degrees may include a final examination which, at the discretion of the major department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by the examining committee as satisfactory or unsatisfactory, with two unsatisfactory votes making the committee report unsatisfactory. The report of the final examination is due in the Graduate College not later than 48 hours after the examination, and by the deadline date established by the Graduate College.

If the department so recommends, a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the next regularly scheduled examination period in the following session. The examination may be repeated only once.

A student must graduate within one calendar year after passing the final examination for a master's degree; failure to meet this deadline will require reexamination of the student.

Upon recommendation of a department, the comprehensive examination for a doctoral degree may be substituted for the master's examination.

Some master's programs do not require a final exam. Students are responsible for checking the specific requirements of their individual degree programs.

K. EXAMINING COMMITTEE

The examining committee for the master's degree consists of at least three members of the Graduate Faculty appointed by the dean upon recommendation of the major department or program. These committees are composed as follows:

- At least two of the faculty members must be members of the UI tenure-track faculty.
- At least two of the faculty members are from the major department (defined as faculty who hold a primary appointment, based upon salary, in the major department) or program, and are members of the tenure-track faculty. (For interdisciplinary programs which do not have salary lines, the foregoing requirement will be interpreted to mean that at least two members of the committee must be formally appointed to the program.)
- A member of the Graduate Faculty who does not hold a primary appointment (based upon salary) in the major department is required in those cases where a related field outside the major department is included in the final examination.

Departments and programs may request the dean's permission to replace one of the three members of the Graduate Faculty by a recognized scholar of professorial rank from another academic institution. Also, a voting member may be added at the discretion of the Graduate College Dean.

Section XI. Graduate Certificate Programs

Graduate certificate programs reflect specialization, either within a field or in an area of study, research, or training. Some graduate certificate programs may be open only to students seeking degrees in related fields; others may be offered as independent programs. Graduate certificate programs are designed to enhance skills, to provide professional development and career advancement opportunities, to broaden career options, and for other purposes, both for traditional, full-time students and for those with full-time employment.

Graduate certificate programs usually require a minimum of 15 s.h. of specified course work and may, in addition, require papers, projects, or experiential learning components designed for specific cohorts. Certificate programs generally require two to three semesters to complete.

Examples include the graduate certificates in aging studies, American Indian and native studies, informatics, and advanced nurse practitioner. Requirements for each graduate certificate are included in The University of Iowa General Catalog.

Section XII. Doctor's Degrees
A. CHARACTER OF DEGREE

The Graduate College offers doctoral programs leading to the Doctor of Philosophy (Ph.D.), the highest degree awarded by the university; the Doctor of Musical Arts (D.M.A.); the professional Doctor of Physical Therapy (D.P.T.); the professional Doctor of Audiology (Au.D.); and the professional Doctor of Nursing Practice (D.N.P.). The Doctor of Philosophy degree indicates marked excellence in original research or other creative work, and superior comprehension in the discipline. The Doctor of Musical Arts degree indicates marked excellence in performance and pedagogy. The Doctor of Physical Therapy degree indicates marked excellence in physical therapy differential diagnosis and clinical integration. The Doctor of Audiology degree indicates marked excellence in theoretical and advanced clinical skills. The Doctor of Nursing Practice degree indicates marked excellence in clinical practice and the application of clinical theory in the classroom and administrative venues.

B. PREREQUISITES

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. RESIDENCE REQUIREMENT

The Ph.D. is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this university, beyond the first 24 s.h. of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (9 s.h. minimum) in each of two semesters; or (2) enrollment for a minimum of 6 s.h. in each of three semesters during which the student holds at least one-quarter-time assistantship certified by the department as contributing to the student's doctoral program. (For purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 s.h. of graduate work.)

D. INTERDISCIPLINARY STUDIES PROGRAMS

A student may prepare a proposal for an interdisciplinary course of study, including the plan of study defining course work, examination requirements, research plan, and a committee of at least five faculty members with either the department most directly concerned or the Graduate College, designated as the sponsor. Final approval of such individual programs is granted by the Graduate College dean, who may add members to the student's supervising committee from other closely related departmental faculties or from the Graduate Council. The degree will be awarded in interdisciplinary studies (doctorate) stipulated in the approved graduate program and, parenthetically, the name of the sponsoring department.

E. REDUCTION OF OLD CREDITS

Courses taken 10 or more years prior to the doctoral comprehensive examination must be evaluated by the major department in order to determine the possible use of these credit hours within a student's plan of study. The department, in turn, must send a letter of petition to the Graduate College, requesting the use of any or all of these credits toward the fulfillment of degree requirements.

F. LIMIT ON PROFESSIONAL COURSES

Work taken by a student in the Colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited to a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree or has completed work equivalent to that required for a bachelor's degree at The University of Iowa. The work accepted from the professional colleges must be directly related to the student's major field of study in the Graduate College, and the plan of study must be approved by the student's advisor and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the one academic year which must be spent in residence as a doctoral student only when the student is registered in a formally established joint degree program.

G. JOINT PROGRAM FOR MASTER'S AND DOCTORAL DEGREES

Those students who expect to continue their training through the doctoral degree may pursue a joint program for the master's and doctor's degrees. The master's examination may be combined with the comprehensive examination for the doctorate for these candidates. The examining committee will file separate reports of its actions on the final examination for the master's degree and for the comprehensive examination. Upon recommendation of the department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master's degree as an intervening part.
examination may be repeated only once, at the option of the department.

Permission to present himself or herself for reexamination not sooner than four months after the first examination. The

In case of a report of unsatisfactory on a comprehensive examination, the committee may grant the candidate

dissertation until a grade of "satisfactory" has been recorded for the comprehensive exam.

recorded as "unsatisfactory" as of that date. The candidate will not be admitted to the final oral examination of the

College indicating that fact. Upon approval of the dean of the Graduate College, the comprehensive exam will be

actions are not of sufficient quality, the appropriate departmental executive will send a written report to the Graduate

committee considers the actions to have been satisfied. Upon approval of the dean of the Graduate College, the

departmental executive will send a written report to the Graduate College indicating the date for which the examining

student were modest, and can be readily rectified. In the event of a report with two or more votes of "reservations," the

A vote of "reservations" should only be used when a faculty member feels that the deficiencies displayed by the

results. The comprehensive examination will be retaken by the candidate to the Graduate College indicating the date for which the examining

A student must be registered in the Graduate College at the time of the comprehensive examination, which

must be satisfactorily completed not later than the session prior to the session of graduation. This examination,

students enrolled in professional D.P.T., D.N.P., and Au.D. programs do not take comprehensive and final

examinations and do not deposit a thesis with the Graduate College. The departments will be required to submit a

Specifications of departmental statements of standards and procedures (see "Section IV.D.")

There is no general Graduate College requirement in foreign languages. Those departments that do require

H. REQUIREMENT IN FOREIGN LANGUAGES

Specifications of departmental statements of standards and procedures (see "Section IV.D.")

G. REQUIREMENTS FOR THE DOCTOR OF PHYSICAL THERAPY (D.P.T.), THE DOCTOR OF AUDIOLOGY (AU.D.), AND THE DOCTOR OF

NURSING PRACTICE (D.N.P.)

changed upon the initiative of the departments.

Specifications of departmental statements of standards and procedures (see "Section IV.D.")

J. PLAN OF STUDY

The development of a plan of study at the doctoral level is the responsibility of the student working together with his or

A formal plan of study must accompany the departmental request to the Graduate College for permission

The candidate must satisfactorily complete a comprehensive examination, consisting of written or oral parts or both at

K. COMPREHENSIVE EXAMINATION

The comprehensive examination is not a deferred qualifying examination. It is administered only on campus, is intended to be an inclusive evaluation of the candidate's

related fields of study, including the tools of research in which competence has been certified.

The comprehensive examination and the final examination, which is concerned chiefly with defense of the thesis and

mastery of the subject at or near the end of his or her formal preparation and prior to the completion of the dissertation.

It is intended to evaluate the candidate's

The comprehensive examination is not required of all students. A candidate who has graduated from another institution and/or

The comprehensive examination, which is concerned with the extent and level of competence in one or more foreign languages establish standards as to the extent and level of competence, as well as

There is no requirement in foreign languages.
L. CONTINUOUS REGISTRATION AFTER COMPLETION OF THE COMPREHENSIVE EXAMINATION

The student is required to register each fall and spring semester after satisfactorily completing the comprehensive examination until the degree is awarded. If a student fails to register, the student may not be readmitted to candidacy until the student has submitted an application that has been approved by the student's advisor, the departmental executive, and the Graduate College dean.

In order to maintain continuous registration, doctoral students may register (1) for required and/or elective courses, research, and thesis hours to complete the plan of study, or (2) for Doctoral Continuous Registration (DCR). DCR requires a 2 s.h. tuition/fee payment. If a temporary lapse in a student's academic program is required due to military service, medical leave, maternity leave, or personal/family leave, a student may petition the Graduate College to be allowed to register for Ph.D. Postcomprehensive Registration (PCR), which allows for the assessment of a special minimum fee. If a petion is granted, it is to be understood that a student will not make significant use of university resources, or engage in significant consultation with the faculty. In the final semester, doctoral students may register for Doctoral Final Registration (DFR), which requires a 2 s.h. tuition/fee payment, or appropriate course work. The DFR may be repeated if the degree requirements are not completed in this session.

Under no circumstances may courses for which tuition/fees are not assessed (Cooperative Education Internship, for example), be used to satisfy the continuous registration or final registration requirement of the Graduate College.

No registration for the summer or winter sessions is required. The exceptions are when the student is taking a degree at the end of the summer session, or when enrollment is required by the student's department.

M. DISSERTATION FOR THE DOCTORAL DEGREE

Beginning with the Fall 2009 Semester all doctoral theses must be submitted to the Graduate College in electronic format.

The student's dissertation, complete and in final form, must be presented in ETD (electronic thesis/dissertation) format at the office of the Graduate College by the first-deposit deadline date in the session in which the degree is to be conferred. The final deposit of the approved ETD must be deposited at the office by the appropriate deadline date in the student's graduation semester. The final deposit can be no later than the end of the semester (summers excluded) following the session in which the final examination is passed; failure to meet this deadline will require reexamination of the student. Failure to submit the first and final deposits of the dissertation by the deadline dates established by the Graduate College will result in the postponement of graduation to a future session. [For detailed submission and formatting requirements, see Theses & Dissertations under Policies & Deadlines on the Graduate College web site.]

Regulations regarding preparation of the dissertation shall be promulgated by the dean of the Graduate College. An external abstract of the dissertation, not to exceed 350 words of text, is to be deposited with the dissertation. The abstract must be approved and signed by the dissertation advisor. Approved ETDs will be forwarded to ProQuest for microfilming and digital archiving; the doctoral abstracts will be published in Dissertation Abstracts International. The PDF format of all electronic submissions will be forwarded by ProQuest to The University of Iowa Libraries, where they will be catalogued and made available for public use.

Dissertations shall be made available to all members of the examining committee not later than two weeks before the date of the examination.

N. DISSERTATION FEES

Nonrefundable fees are charged each doctoral candidate to cover processing and publication costs of the dissertation and abstract.

O. FINAL EXAMINATION

The work for the degree culminates in a final oral examination administered on campus. This examination should include: a critical inquiry into the purposes, methods, and results of the investigation—not a mere recapitulation of the procedures followed—and intensive questioning on areas of knowledge constituting the immediate context of the investigation.

The final examination may not be held until the next session after the student satisfactorily completes the comprehensive examination; however, a student must pass the final examination no later than five years after satisfactorily completing the comprehensive examination. Failure to meet this deadline will result in a reexamination of the student to determine his or her qualifications for taking the final examination. The procedures to be followed are the same as those for the comprehensive examination. (See “XII.K. Comprehensive Examination.”)

Final examinations for the doctorate are open to the public. Members of the faculty of the Graduate College are especially invited to attend and, subject to the approval of the chair, to participate in the examination.
The report of the final examination is due in the Graduate College office not later than 48 hours after the examination. The final examination will be evaluated as satisfactory or unsatisfactory. Two unsatisfactory votes will make the committee report unsatisfactory. In case of a report of unsatisfactory in the final examination, the candidate may not present himself or herself for reexamination until the next session. The examination may be repeated only once, at the option of the major department.

P. EXAMINING COMMITTEES

The comprehensive and final examinations are conducted by committees of no fewer than five members of the Graduate Faculty appointed by the dean upon recommendation of the major department or program. These committees are composed as follows:

At least four of the faculty members must be members of the UI tenure-track faculty.

At least two of the faculty members are from the major department (defined as faculty who hold a primary appointment, based upon salary, in the major department) or program, and are members of the tenure-track faculty. (For interdisciplinary programs which do not have salary lines, the foregoing requirement will be interpreted to mean that at least two members of the committee must be formally appointed to the program.)

A member of the Graduate Faculty who does not hold a primary appointment (based upon salary) in the major department is required in those cases where a related field outside the major department is included in the comprehensive examination.

For the final examination one member of the committee must be a member of the Graduate Faculty who does not hold a primary appointment (based upon salary) in the major department. This "outside" member must be a UI tenure-track faculty member. (For interdisciplinary programs which do not have salary lines, the foregoing requirement will be interpreted to mean that one member of the committee must be a tenure-track faculty member who is not appointed to the program; and all five members of the committee may not be from the same department.)

Departments and programs may request the dean's permission to replace one of the five members of the Graduate Faculty by a recognized scholar of professorial rank from another academic institution. Also, a voting member may be added at the discretion of the Graduate College Dean.

Section XIII. Exceptions

Petitions to waive these regulations may be made for appropriate and justifiable reasons on behalf of any graduate student through the departmental executive to the dean and the Graduate Council.

Nondepartmental Courses

000:000 Ph.D. Postcomprehensive Registration 0 s.h.
000:001 Master's Final Registration 0 s.h.
000:002 Doctoral Continuous Registration 0 s.h.
000:003 Doctoral Final Registration 0 s.h.
000:008 CIC Scholar Nongraduate Level arr.
000:800 CIC Scholar arr.
000:801 Regents Exchange Program arr.
000:997 Graduate/Professional Transfer arr.
000:998 Undergraduate Transfer arr.
000:999 Resident/Fellow/Post-Doctoral 0 s.h.
650:006 SROP/McNair Scholars Program 0 s.h.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>650:270</td>
<td>Principles of Scholarly Integrity</td>
<td>1 s.h.</td>
<td>Introductory four-hour orientation workshop; small group participation in eight 90-minute workshops over four semesters; issues of student/mentor responsibilities for the pursuit of scholarly work (ownership, authorship, plagiarism/falsification/fabrication of data); the student/mentor relationship and promoting an intellectual dialogue (communication, collaboration, grievance management); student responsibilities involving the institution, the scholarly community, and society (intellectual property, conflict of interest, fiscal responsibilities, human/animal subjects). Prerequisite: enrollment in Graduate College degree-seeking program.</td>
</tr>
<tr>
<td>650:275</td>
<td>OGEI Topical Seminar: Professional Sustainability in Graduate School</td>
<td>1 s.h.</td>
<td>Skill development and sustainability plan; professional literature, guest speakers.</td>
</tr>
<tr>
<td>650:300</td>
<td>Writing for Learned Journals</td>
<td>1-4 s.h.</td>
<td>Help for graduate students in bringing written work to publishable form; analysis of target journals' audiences and interests; submission, response to criticism. Same as 08N:340, 160:300.</td>
</tr>
<tr>
<td>650:313</td>
<td>Digital Rhetoric</td>
<td>3 s.h.</td>
<td>Current discourse (utopic, dystopic, other strands) about the Internet as it shapes and is shaped by competing forces. Repeatable. Same as 008:313, 160:313.</td>
</tr>
<tr>
<td>650:380</td>
<td>Practicum in College Teaching</td>
<td>arr.</td>
<td>Supervised college teaching experience; teaching in collaboration with faculty, observation and critiques of teaching, participation in course planning and evaluation procedures; ethical and multicultural considerations. Prerequisites: admission to the graduate certificate in college teaching program and consent of the Graduate College.</td>
</tr>
<tr>
<td>650:385</td>
<td>Teaching and Learning in Higher Education</td>
<td>3 s.h.</td>
<td>Current theoretical and empirical literature on teaching and learning in higher education; focus on development of effective teaching practice. Same as 07B:385, 07C:385, 07P:385, 07S:384.</td>
</tr>
<tr>
<td>650:386</td>
<td>Teaching Portfolio Development</td>
<td>1-3 s.h.</td>
<td>Development of a web- or paper-based teaching portfolio; sample syllabi, statement of teaching philosophy, samples of student work assignments, essays on issues in higher education teaching. Prerequisite: admission to certificate in graduate teaching program.</td>
</tr>
<tr>
<td>650:601</td>
<td>Postdoctoral Research Scholar</td>
<td>0 s.h.</td>
<td>Repeatable. Prerequisite: postdoctoral standing.</td>
</tr>
<tr>
<td>650:602</td>
<td>Postdoctoral Research Fellow</td>
<td>0 s.h.</td>
<td>Repeatable. Prerequisite: postdoctoral standing.</td>
</tr>
<tr>
<td>650:604</td>
<td>Principles of Scholarly Integrity</td>
<td>0 s.h.</td>
<td>Small group participation in eight 90-minute workshops over four semesters; issues of student/mentor responsibilities for the pursuit of scholarly work (ownership, authorship, plagiarism/falsification/fabrication of data); the student/mentor relationship and promoting an intellectual dialogue (communication, collaboration, grievance management); student responsibilities involving the institution, the scholarly community, and society (intellectual property, conflict of interest, fiscal responsibilities, human/animal subjects). Repeatable. Prerequisites: postdoctoral standing and consent of course director.</td>
</tr>
<tr>
<td>650:605</td>
<td>Writing for Learned Journals</td>
<td>0 s.h.</td>
<td>Help for graduate students in bringing written work to publishable form; analysis of target journals' rhetoric; submission, response to criticism. Prerequisite: postdoctoral standing.</td>
</tr>
<tr>
<td>650:606</td>
<td>Survival Skills for a Research Career</td>
<td>0 s.h.</td>
<td>Nonlaboratory skills necessary for pursuing a scientific research career, including scientific writing, presentation, manuscript review, curriculum vitae preparation, and so forth. Repeatable. Prerequisite: postdoctoral standing.</td>
</tr>
</tbody>
</table>

Graduate College
Applied Mathematical and Computational Sciences

Chair: Weimin Han (Mathematics)
Affiliated faculty: Karim A. Abdel-Malek (Biomedical Engineering), Kurt Anstreicher (Management Sciences), Marc P. Armstrong (Geography), Bruce Ayati (Mathematics), Debashish Bhattacharya (Biology), Samuel Burer (Management Sciences), Ann M. Campbell (Management Sciences), Gregory R. Carmichael (Chemical and Biochemical Engineering), Thomas L. Casavant (Electrical and Computer Engineering), Kyoung K. Choi (Mechanical and Industrial Engineering), James F. Cremer (Computer Science), Rodica Curtu (Mathematics), Isabel Darcy (Mathematics), Soura Dasgupta (Electrical and Computer Engineering), John Geweke (Economics/Statistics and Actuarial Science), Lilach Hadany (Biology), Weimin Han (Mathematics), Stephen D. Hendrix (Biology), Jian Huang (Statistics and Actuarial Science), Raj Jaganathan (Management Sciences), Lauren Jay (Mathematics), Douglas W. Jones (Computer Science), Palle Jorgensen (Mathematics), Alun R. Kay (Biology), Joseph K. Kearney (Computer Science), William H. Klink (Physics and Astronomy), Russell V. Lenth (Statistics and Actuarial Science), Tong Li (Mathematics), Yi Li (Mathematics), Ching-Long Lin (Industrial and Mechanical Engineering), John Logsdon (Biology), Jia Lu (Mechanical and Industrial Engineering), Michael Mackey (Biomedical Engineering/Pathology), John R. Manak (Biological and Medical Sciences), Colleen Mitchell (Mathematics), George Neumann (Economics), Gregg C. Oden (Psychology), Jeffrey W. Ohnmann (Management Sciences), Suely Oliveira (Computer Science), Wayne Polyzou (Physics and Astronomy), Sharif Rahman (Mechanical and Industrial Engineering), R. Rajagopal (Geography/Civil and Environmental Engineering), Teodor Rus (Computer Science), Gerard Rushton (Geography), Alberto M. Segre (Computer Science), Elias Shiu (Statistics and Actuarial Science), Jonathan Simon (Mathematics), Milan Sonka (Electrical and Computer Engineering), David Stewart (Mathematics), Osnat Stramer (Statistics and Actuarial Science), Gerhard O. Strohmer (Mathematics), Qihe Tang (Statistics and Actuarial Science), Tuong Ton-That (Mathematics), Lihe Wang (Mathematics), George G. Woodworth (Statistics and Actuarial Science), Chun-Fang Wu (Biological and Medical Sciences), Hantao Zhang (Computer Science), Ying Zhang (Biostatistics)

Graduate degree: Ph.D. in Applied Mathematical and Computational Sciences
Web site: http://www.amcs.uiowa.edu/

Applied mathematical scientists formulate scientific concepts and problems in mathematical terms; solve the resulting mathematical problems using analytical and computational methods; and discuss, interpret, and evaluate the solutions. They explore areas of mathematical application and develop mathematical theories in new areas.

Career opportunities for applied mathematicians include positions in colleges, universities, governmental laboratories, business, industry, and consulting firms.

Graduate Program

The program offers a Ph.D. in applied mathematical and computational sciences.

Doctor of Philosophy

The Doctor of Philosophy in applied mathematical and computational sciences requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is autonomous, broadly based, and interdisciplinary. It is designed to help students achieve a command of theoretical and applied mathematics and obtain basic knowledge in another area (engineering, medicine, or one of the behavioral, biological, physical, or social sciences).

The program is flexible; students can concentrate on applied mathematics, such as differential equations and numerical analysis, or on other applicable techniques in mathematics. Scientific computing is an important part of applied mathematics, so it is often a part of student training and dissertation research.

Prospective students should have a desire to apply a mathematical science (mathematics or statistics) to relevant problems in another area.

PLAN OF STUDY

Faculty members help each student plan a course of study that is consistent with the student's background, interests, and goals.

These individual programs are designed to help students develop expertise in methods of applied mathematics and build a good foundation in related topics of theoretical mathematics. The individual programs also provide sufficient knowledge in an outside area to enable students to use mathematical techniques in that area.

Students can arrange their study plans to earn a master's degree from another department after they complete part of their plan. Students find suitable thesis problems and supervisors with the help of the faculty.

QUALIFYING AND COMPREHENSIVE EXAMINATIONS

Students take a qualifying examination over three of the four core course sequences required for the Ph.D. (analysis, differential equations, numerical analysis, and topology). They also take a comprehensive examination over the chosen outside area.

One program objective is to have each student's dissertation research include many of the activities of an applied mathematical scientist. For example, a student might formulate a model, do a quantitative analysis of the model, and interpret the results.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. To be prepared for graduate-level course
work in mathematics and an additional area, applicants should have a bachelor's or master's degree with a strong mathematics component and some background in the additional area.

Applications for fall admission are due on January 15. For application forms and more information about the academic program, contact the chair of the Applied Mathematical and Computational Sciences Program.

**Financial Support**

Fellowships and research and teaching assistantships are available to qualified applicants. Fellowship support is available during summers. Applications for financial support should be submitted at the same time as applications for admission.

**Applied Mathematical and Computational Sciences Courses**

**22A:397 Seminar: Applied Mathematical and Computational Sciences**  
Current research by faculty, students, guests. Prerequisite: consent of instructor.

**22A:399 Reading and Research**  
Repeatable. Prerequisite: consent of advisor.
Biosciences

Director: Andrew F. Russo

Affiliated faculty:
Paul Abbas (Communication Sciences and Disorders/Otolaryngology—Head and Neck Surgery), Francois Abboud (Internal Medicine), Alessio Accardi (Molecular Physiology and Biophysics), Christopher Adams (Internal Medicine), Lee-Ann Allen (Internal Medicine), Mark Anderson (Internal Medicine), Michael C. Anderson (Biophysics), Mario Apicella (Microbiology), Guy Aruffo (Radiation Oncology), Alessandro Artale (Molecular Physiology and Biophysics), Mario Ascoli (Pharmacology), Zuhair Ballas (Internal Medicine), Botond Banfi (Anatomy and Cell Biology), Alex Bassuk (Pediatrics), Christopher Benson (Internal Medicine), Ramesh Bhalla (Anatomy and Cell Biology), Jackie Bickenbach (Anatomy and Cell Biology), Bishal Bhandari (Anesthesiology), Timothy Brennan (Anesthesiology), Bryan Berend (Radiation Oncology), Kevin Campbell (Molecular Physiology and Biophysics), Brent Carter (Internal Medicine), Thomas Cavaletti (Electrical and Computer Engineering), Martin Cassell (Anatomy and Cell Biology), Mark Chaplau (Internal Medicine), Songhui Chen (Pharmacology), Chi-Lien Cheng (Biology), Amit Choudhury (Anatomy and Cell Biology), Michael Cohen (Pathology), Kelly James Cole (Integrative Physiology), John Colgan (Internal Medicine), Jose Corrascino (Biophysics), Robert Cornell (Anatomy and Cell Biology), Charles Cox (Microbiology), Joseph Cullen (Surgery), John Dagle (Pediatrics), Michael Dailey (Biochemistry), Warren Darrell (Integrative Physiology), Beverly Davidson (Internal Medicine), Deborah Dawson (Preventive and Community Dentistry), Kris DeMali (Biochemistry), Jeffrey Denburg (Internal Medicine), John Devine (Medicinal and Natural Products Chemistry), Michael Duffel (Medicinal and Natural Products Chemistry), Michael Elia (Medicine), Robert Felder (Internal Medicine), Elizabeth Field (Internal Medicine), William Field (Oncological and Environmental Health), John Fingert (Ophthalmology and Visual Sciences), R. Fisher (Pharmacology), Robert Francis (Anthropology), Joseph Frankel (Biology), Michael Freedman (Science), Gregory Friesen (Biochemistry), Thomas Gifford (Pharmacology), Gary Giusi (Biochemistry), Hasen Habelhut (Pathology), Amanda Haff (Chemistry), Gregory Hageman (Ophthalmology and Visual Sciences), Donna Hamilton (Anesthesiology), N. Charles Harata (Molecular Physiology and Biophysics), John Hartly (Microbiology), Richard Elliot Hazeltine (Psychology), Paul Heigl (Internal Medicine and Cell Biology), Donald Hedquist (Internal Medicine), Johannes Hell (Pharmacology), Stephen Henderson (Biochemistry), Michael Helsley (Physiology and Biophysics), Jonathan Heusel (Pathology), Raymond Holt (Internal Medicine), Keri Hombude (Civil and Environmental Engineering), Mary Horne (Microbiology), Alexander Horwalt (Microbiology), Diana Horton (Biology), Bruce Hostager (Pediatrics), Douglas Houston (Bone), Jon Houghton (Microbiology), Matthew Howard (Neurosurgery), Richard Hurtig (Communication Sciences and Disorders), Fiorenza Ianzini (Pathology), Erin Irish (Biology), Tozaki (Pathology), Siegfried Jans (Pathology), Jean Jew (Anatomy and Cell Biology), Alan Kim Johnson (Psychology), Wayne Johnson (Molecular Physiology and Biophysics), Bradley Jones (Microbiology), Masataka Kawai (Anatomy and Cell Biology), Alan Kay (Biology), Shahram Khademi (Biochemistry), John Kirby (Microbiology), Toshiaki Kondo (Anesthesiology), Joel Kline (Internal Medicine), Al Kirshenblatt (Microbiology), Michael Knudson (Pathology), Amnon Kupferman (Pathology), Tom Kusuma (Integrative Physiology), Minjae Ko (Pathology), Tomokazu Kubo (Anesthesiology), Matsushita (Pathology), Patricia Kwan (Pathology), Anne Kwon (Pathology), James L. Landers (Pathology), Edward Landry (Molecular Physiology and Biophysics), Gloria Lee (Internal Medicine), Inah Lee (Microbiology), Kevin Legge (Pathology), Steven Lentz (Internal Medicine), Andrew Liddal (Orthodontics), Fang Lin (Anatomy and Cell Biology), Jim Lu (Chung-Jung) Lin (Biology), John Logsdon (Biology), Gabrielle Ludwig (Occupational and Environmental Health), Vincent Magnotta (Radiology), Rama Mallapalli (Internal Medicine), Robert Malone (Biology), John Manak (Biological), Claudius Margulis (Chemistry), Wendy Maury (Microbiology), Bryant McAllister (Internal Medicine), Linda McCrae (Microbiology), Paul McCray (Pediatrics), Stephen McGowan (Internal Medicine), Jeffrey Meier (Internal Medicine), John Menninger (Biology), Lou Messier (Chemistry), Durga R. (D.P.) Mohapatra (Pharmacology), Peter Mohler (Internal Medicine), Steven Moore (Pathology), Craig T. Morita (Internal Medicine), David Moser (Psychiatry), David Motto (Internal Medicine), Scott Moye-Rowley (Molecular Physiology and Biophysics), David Murhammer (Chemical and Biochemical Engineering), Jeffrey Murray (Pediatrics), Peter Nagy (Pathology), William Nauss (Internal Medicine), Michael Neiman (Biology), Peggy Nopoulos (Psychiatry), Daniel O'Dorisio (Pediatrics), Daniel O'Leary (Psychiatry), Nicholas Pannuto (Anesthesiology), Sergio Paradiso (Psychiatry), Shivanand Patil (Pediatrics), Jane Paulsen (Psychiatry), Stanley Perlman (Microbiology), Robert Philip (Psychiatry), Brian Pierce (Molecular Physiology and Biophysics), Bryce Piapp (Pediatrics), Amy Poremba (Psychology), David Price (Biochemistry), Herbert Proudfoot (Pharmacology), Kevin Quinn (Neurology), Maria Ramirez (Internal Medicine), Rachael Ratliff (Biological), Michael Rich (Microbiology), Daniel Rizzo (Neurology), Larry Robertson (Occupational and Environmental Health), Robert Robinson (Psychiatry), Jan-Uwe Rohde (Chemistry), Richard Roller (Microbiology), Paul Rothman (Internal Medicine), Peter Rubenstein (Biochemistry), Andrew Russo (Molecular Physiology and Biophysics), Tom Rutkowski (Physiology and Biophysics), Devang Saha (Microbiology), John Savich (Biological), Peter Schmidt (Molecular Physiology and Biophysics), Jerald Schoener (Molecular Physiology and Biophysics), Albert Sege (Computer Science), Madeline Schea (Biochemistry), David Sheff (Pharmacology), Val Sheff (Pediatrics), Erwin Shibata (Molecular Physiology and Biophysics), Ming-Ching Shih (Neurology), Curt Sigmond (Internal Medicine), Kathleen Sluka (Physical Therapy and Rehabilitation Science), Diane Slusarski (Biochemistry), Richard Smith (Otolaryngology), David Soll (Biology), Douglass Spitz (Radiation Oncology), Mark Stamm (Molecular Physiology and Biophysics), Jack Stapleton (Internal Medicine), George Stauffer (Microbiology), Christopher Stipp (Biology), C. Martin Sztolcman (Microbiology), Edwin Stone (Ophthalmology and Visual Sciences), Stefan Strach (Pharmacology), Fayyaz苏托努斯(Internal Medicine), Wei-Tse Tai (Pathology), Kris Thomas (Internal Medicine), Peter Thorne (Occupational and Environmental Health), Ingo Titze (Communication Sciences and Disorders), Robert Tomasic (Anatomy and Cell Biology), J. Bruce Tomblin (Communication Sciences and Disorders), Daniel Tranell (Neurology), Lubomir Turk (Pathology), Christopher Turner (Genetics and Enzymology), Engur Uc (Neurology), Yuril Uslanov (Pathology), Aviv Uziel (Neurology), Jennifer Virden (Pathology), Carol Wang (Pathology), Brian Wall (Pathology), Lior Wallach (Biochemistry), Andy (Wei-Yeh) Wang (Biology), M. Todd Washington (Biochemistry), Edward Wasserman (Psychology), Thomas Wassink (Psychiatry), Daniel Weiss (Microbiology), George Wester (Internal Medicine), Joshua Weiner (Internal Medicine), Timothy Yahr (Microbiology), David Weiss (Microbiology), Jerold Weiss (Internal Medicine), Michael Welsh (Internal Medicine), John Wempen (Psychiatry), David Wiemer (Psychiatry), Terence Williams (Anatomy and Cell Biology), Maria Willing (Pediatrics), Robert Wilson (Internal Medicine), Marc Wold (Biochemistry), Michael Wright (Molecular Physiology and Biophysics), Chun-Fang Wu (Biology), Hai-Hui Xu (Internal Medicine), Imogene Yaffe (Orthodontics), Timothy Yahr (Microbiology), Charles Yeaman (Anatomy and Cell Biology), Joseph Zabner (Internal Medicine), Nicholas Zavatsky (Internal Medicine)

Web site: http://www.healthcare.uiowa.edu/biosciences

Graduate Program

Participation in the Biosciences Program leads to a Ph.D. degree in a biosciences discipline. The program provides graduate students the freedom to explore research in any of 14 University of Iowa biosciences research departments and programs: the Departments of Anatomy and Cell Biology, Biochemistry, Biology, Chemistry, Communication Sciences and Disorders, Microbiology, Molecular Physiology and Biophysics, and Pharmacology; and the Programs in Free and Radialated Research in Biology, Genetics, Human Toxicology, Immunology, Molecular and Cellular Biology, and Neuroscience.

Biosciences students enjoy the flexibility of investigating several disciplines through research rotations in the laboratories of Biosciences Program faculty members. Following completion of their first year in the program, students select a research laboratory and program affiliation and decide on a thesis project that will lead to a Ph.D.

Semester hour requirements for the doctorate vary by program, but all Ph.D. degrees at Iowa require at least 72 s.h. of graduate credit. For detailed information on Graduate College policies, see the Manual of Rules and Regulations of the Graduate College.

Curriculum

During their first year in the program, students perform three 10-week research rotations in Biosciences Program departments and programs of their choice. They also take a principles course (156:201 Fundamentals of Gene Expression), a seminar course (156:265 Biosciences Critical Thinking and Communication), and one or more electives.
Biosciences students are advised on course selection, research rotations, and registration by a faculty member closely related to the student's research and academic interests. As research rotations are assigned, the faculty advisor works in consultation with the student's rotation advisors until the end of the first year.

Biosciences students provide a short oral presentation following each research rotation to an audience of their primary advisor, research advisor(s), and other biosciences students. Rotation advisors provide rotation reports, and rotations are evaluated by the student's primary advisor. The student's primary advisor also confers with the student on course grades, subsequent rotations, and the student's selection of a department or program and lab for thesis research.

In addition to laboratory rotations, all biosciences students take 156:201 Fundamentals of Gene Expression, which provides a foundation for understanding basic principles of molecular and cell biology relevant to all bioscience disciplines and teaches students how to evaluate literature critically.

They also take 156:265 Biosciences Critical Thinking and Communication, which dovetails with research rotations and seminar series offered by the Biosciences Program's departments and programs. The course involves weekly discussions of selected papers and oral and written presentations tied to the student's research rotations.

Overall student progress is monitored by the student's primary advisor, rotation advisor(s), and program director, who meet at the end of each semester to review the student's work. At the end of the second semester, the primary advisor, in cooperation with the rotation advisor(s), makes a recommendation to the Biosciences Program director whether the student should continue in the Ph.D. program. University guidelines, such as maintaining a cumulative g.p.a. of 3.00 or higher, are considered, along with performance in rotations.

During the second semester, Biosciences Program students meet with prospective mentors regarding thesis proposals and openings available in the mentors' laboratories. Students identify the program and laboratory they would like to join. Two weeks before the spring semester ends, students submit their choice of graduate programs and faculty mentors to the Biosciences Program office, which coordinates each student's transfer to his or her chosen program. From that point on, the department or program advises the student and evaluates his or her performance.

Most participating departments and programs require that students take a comprehensive exam at the end of the second year and no later than the third year. Following successful completion of the exam, students advance to Ph.D. candidacy.

REQUIRED COURSES

All Biosciences Program students must complete the following course work. Students earn at least 12 s.h. each semester.

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>156:201 Fundamentals of Gene Expression</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:265 Biosciences Critical Thinking and Communication</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>156:302 Biosciences Research (10-week research rotations)</td>
<td>arr.</td>
</tr>
<tr>
<td>One elective</td>
<td></td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>156:265 Biosciences Critical Thinking and Communication</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>156:302 Biosciences Research (10-week research rotations)</td>
<td>arr.</td>
</tr>
<tr>
<td>650:270 Principles of Scholarly Integrity</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>Two electives</td>
<td></td>
</tr>
</tbody>
</table>

**Admission**

The program accepts students with a variety of backgrounds in the biological and physical sciences. Entering students must hold a baccalaureate degree from an accredited college or university and should have completed courses in biology, chemistry, physics, and calculus consistent with requirements for a baccalaureate degree in the sciences. An undergraduate g.p.a. of at least 3.00 is required.

Applicants must submit their scores on the Graduate Record Examination; a combined verbal and quantitative score of 1200 and an analytical writing score of 4.5 or higher are preferred. Applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Other indicators of academic accomplishments, such as research experience and letters of recommendation, are
considered.

Information about graduate training and application materials are available from the Biosciences Program office. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Graduate students receive stipend and tuition support from The University of Iowa and other sources. Students promoted to the second year in the program receive support from their graduate departments and programs. The Biosciences Program also helps some students apply for competitive national awards for outstanding academic and research achievement.

Facilities

The Carver College of Medicine provides state-of-the-art facilities for students, researchers, and instructors. The Medical Education and Research Facility, completed in 2002, provides 220,000 square feet of modern laboratories, lecture halls, clinical examinations rooms, and study and meeting space for students. The Carver Biomedical Research building opened in 2005. The 135,000 square-foot building is devoted to research, with five floors of specialized laboratories and new technology. In addition to its new buildings, the college offers recently renovated laboratories and classrooms.

The health sciences campus provides parking, food service, and enjoyable outdoor common areas and pedestrian routes. Most of the University’s health sciences colleges and clinical facilities are located there.

The basic science and clinical departments of the Carver College of Medicine are housed primarily in the Bowen Science Building, Carver Biomedical Research Building, Eckstein Medical Research Building, Medical Education and Research Facility, Medical Laboratories, and University of Iowa Hospitals and Clinics. Nearby are the Hardin Library for the Health Sciences and the Iowa City Veterans Affairs Medical Center.

The Departments of Anatomy and Cell Biology, Biochemistry, Microbiology, Molecular Physiology and Biophysics, and Pharmacology are housed in the Bowen Science Building. Laboratories of clinical departments are located primarily in the Medical Laboratories and the Medical Research Center.

The Eckstein Medical Research Building houses major core facilities for microscopy, image analysis, flow cytometry, protein structure, and monoclonal antibody production, as well as research laboratories for basic investigators with interdisciplinary approaches to cancer, molecular biology, genetics, and immunology. The geographic proximity of these facilities promotes interchange among clinical and basic science faculty members and students and maximizes use of the University's extensive core facilities for biomedical research.

Integral to the University's research environment are the Carver Family Center for Macular Degeneration, Center for Auditory Regeneration and Deafness, Center for Bioinformatics and Computational Biology, Center for Emerging Infectious Diseases, Center for Functional Genomics of Hypertension, Center for Gene Therapy of Cystic Fibrosis and Other Genetic Diseases, Center for Research on the Implementation of Innovative Strategies in Practice, Center on Aging, Craniofacial Center Collaboratory, Cystic Fibrosis Research Center, General Clinical Research Center, Holden Comprehensive Cancer Center, Huntington's Disease Center for Excellence, Iowa Center for Muscular Dystrophy Research, Iowa Cardiovascular Center, Iowa Comprehensive Lung Imaging Center, Helen C. Levitt Center for Viral Pathogenesis, George M. O'Brien Kidney Research Center, Specialized Center for Research in Osteoarthritis, and the Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Center.

In addition to the University's extensive facilities for research support, the Carver College of Medicine and the College of Liberal Arts and Sciences operate a variety of research support facilities. Tissue culture, autoclaving, purified water, darkrooms, counters, and a variety of general-use equipment and services are available on a shared basis.

Biosciences Courses

156:201 Fundamentals of Gene Expression 1 s.h.
DNA and RNA structure, nuclear organization, DNA replication, RNA production and processing, small RNAs, RNAi, and genetic and epigenetic regulation; didactic and small group sessions, discussion of primary research publications.

156:202 Fundamentals of Protein Regulation 1 s.h.
Protein structure, purification, analysis, production, post-translation modification and cellular trafficking; didactic and small group sessions, discussion of primary research publications.

156:203 Fundamentals of Dynamic Cell Processes 1 s.h.
Overview of actin, microtubules, motors, intermediate filaments, cell-cell junctions, G-coupled signaling, wnt-jak/stat signaling, ion channels, cell cycle, stem cells.

156:204 Biostatistics for Biomedical Research  
Application of statistical techniques to biological data analysis; normal distribution, sampling distribution of the mean, variance, nonparametric methods, linear regression, power, and sample size. Prerequisite: consent of instructor. Same as 171:151.

156:205 Practical Bioinformatics  
Formal instruction on the use and application of bioinformatics for bench scientists; bioinformatics, resources, genome annotations, sequence analysis, comparative genomics, expression analysis, and systems biology. Prerequisites: biostatistics and consent of instructor.

156:265 Biosciences Critical Thinking and Communication  
Selected papers and oral and written presentations tied to students’ research rotations; introductory seminar. Repeatable. Prerequisite: consent of instructor. Same as 002:270, 072:342.

156:302 Biosciences Research  
Research experience in the lab of a biosciences program faculty member. Repeatable.
Center for the Book

Director: Matthew P. Brown (English/Center for the Book)
Professors: Timothy Barrett, Ed Folsom (English/Center for the Book), Robert Glasgow (Art and Art History/Center for the Book), Judith Pascoe (English/Center for the Book), James Snitzer (Art and Art History/Center for the Book), Katherine Tachau (History/Center for the Book), Jonathan Wilcox (English/Center for the Book)
Associate professor: Matthew P. Brown (English/Center for the Book)
Adjunct assistant professors: Gary Frost, Cheryl Jacobsen, Penny McKean, Emily Martin, Sara Sauers
Adjunct instructors: Craig Kelchen (Division of Performing Arts), Julie Smith
Lecturers: Kathleen Kamerick (History/Center for the Book), Sara Langworthy, Julia Leonard (Center for the Book/Art and Art History)
Graduate nondegree program: Certificate in Book Studies/Book Arts and Technologies
Web site: http://www.uiowa.edu/~ctrbook

The University of Iowa Center for the Book represents a community of faculty, staff, students, and local book specialists with interests in all facets of book production, distribution, and use. Some members of the center actively research the history and circulation of the book, examining books' role in cultural and historical processes. They also look at how changes in book production affect the way books are viewed as artifacts. Specialists in book arts and technologies study the history and technique of book crafts, including letterpress and offset printing, typography, calligraphy, papermaking, and bookbinding. Others engage in the conservation or production of books, including artists' books and literary fine press publications.

The center offers classes; sponsors lectures, seminars, and workshops; and encourages the exchange of ideas among individuals with interests in the book. A wide range of perspectives on the book as an aesthetic, cultural, and historical artifact is provided by associated faculty, staff, and graduate students in the Schools of Art and Art History and Library and Information Science; the Departments of History, English, and Computer Science; University of Iowa Libraries; the Iowa Writers' Workshop; and other areas. This interdisciplinary membership and the center's facilities combine to provide an exceptional environment for studying the history of the book, its evolution, and its future.

The center collaborates with the Graduate College to offer a graduate-level certificate program. Undergraduate students can add dimension to their majors in English, art, journalism, history, and other disciplines by taking Center for the Book courses in book crafts and book studies. They also may include an emphasis on book arts or on cultural and historical aspects of the book in the interdepartmental studies major.

Certificate

The Certificate in Book Studies/Book Arts and Technologies requires 24 s.h. of course work. It is offered by the Center for the Book through the Graduate College.

The program's principal objectives are to:

- place the interdisciplinary study of book history, arts, and technologies in academic and aesthetic contexts;
- provide a structured program in art, English, history, library and information science, and other departments for graduate students who are seriously interested in book studies; and
- give nondegree, graduate-level students who wish to study the book a framework for their study.

Students have two options in pursuing the certificate. Graduate students enrolled in a degree program at Iowa may work concurrently toward the certificate and an M.A., M.F.A., or Ph.D. Students who wish to pursue the certificate but not a graduate degree may do so with nondegree status in the Graduate College.

Of the required 24 s.h. of course work, at least 6 s.h. must be taken from the academic course list and 6 s.h. from the arts and technologies course list. Required course work also includes a final project—a substantial work supervised by a committee chosen by the student (see the center's publication Final Project Guidelines). For more information, contact the Center for the Book or visit its web site.

Admission

Admission requires active standing in the Graduate College. Applicants submit a statement of purpose and evidence of scholarly or creative work to the center. For more information about admission, contact the Center for the Book.

Financial Support

Students may secure support from University of Iowa sources (contact the Office of Student Financial Aid) or from outside funding agencies. Working assistantships are available at the center's professional production workshops. Internships and part-time work are available to qualified student and nonstudent professionals, especially in the areas of bookbinding, papermaking, and letterpress printing.

Center for the Book Courses

108:029 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, fieldtrips). Prerequisite: first- or second-semester standing.

108:100 **Special Project for Undergraduates**
Independent study.

108:110 **Papermaking**  
3 s.h.
History, fundamental techniques of Western and Eastern hand papermaking; projects in traditional sheet forming, basic paper chemistry, paper coloring. Offered fall semesters. Prerequisite: consent of instructor. Same as 01X:110.

108:112 **Studies in Papermaking**  
Topics in the history and technique of papermaking.

108:130 **Paperworks**  
3 s.h.
Conceptual and methodological approaches to 2-D and 3-D paper works; students create a body of works that couple the unique properties of paper-pulp medium with personal visual ideas and clarity of intent; contemporary issues in paper pulp and the medium's relationship to larger art and craft contexts; for students with significant prior papermaking experience. Prerequisite: 01X:110 or 01X:210 or equivalent; or consent of instructor. Same as 01X:130.

108:132 **Papermaking History and Technique**  
3 s.h.
Traditional Eastern and Western sheet forming techniques, history, aesthetics; emphasis on fiber selection and preparation. Offered spring semesters. Prerequisite: consent of instructor. Same as 01X:120.

108:142 **History of Western Letterforms**  
3 s.h.
History of Western letterforms, with focus on tools, materials, techniques; the major hands, their place in history, their influence on modern times; creation of letterforms using appropriate tools; hands-on approach with emphasis on understanding rather than mastery. Same as 01Z:142.

108:143 **Calligraphy: Foundational Hands**  
3 s.h.
Fundamental calligraphic skills using Roman majuscule, Humanistic minuscule, Italic; basic layout and color theory incorporated into letter practice. Same as 01Z:143.

108:144 **Calligraphy: Italic and Script Hands**  
3 s.h.
Hands-on instruction in italic and pressure pen scripts; historical relationships, effects on modern letterforms. Same as 01Z:144.

108:145 **Calligraphy: Blackletter Hands**  
3 s.h.
Development of proficiency in various hands, from vertical Textura to floridly gothic cursive; blackletter's historical connections with other disciplines.

108:146 **Studies in Letter Arts**  
Special topics and advanced projects in calligraphy and letter arts. Prerequisite: 108:140 or 108:141 or 108:142 or 01X:143 or consent of instructor. Same as 01Z:146.

108:150 **Bookbinding I: Materials and Techniques**  
Hands-on introduction to materials and techniques commonly used in bookbinding. Same as 01Y:150.

108:151 **Bookbinding II**  
3 s.h.
Build on skills acquired in 108:150; projects to complete six bindings based on historical and contemporary models; sewing styles, board attachments, endband types; nonadhesive and case-bound structures, varied materials and binding styles, their effects on structure, aesthetic considerations, further development of solid binding skills; historical development of particular binding practices. Prerequisite: 108:150 or consent of instructor. Same as 01Y:151.

108:152 **Bookbinding III**  
3 s.h.
Five bookbindings based on historical and contemporary models; differences in various binding practices, how these differences affect function, why the styles developed; experience choosing appropriate structures for particular uses; emphasis on fine tuning skills and techniques required for advanced binding practices; sewn endbands, rounding and backing, sewing on varied supports, board attachments, and covering methods. Prerequisites: (for 108:152) 108:150 and 108:151, or consent of instructor. Prerequisites: (for 01Y:152) 01Y:150 or 01Y:151 or 108:150 or 108:151, and consent of instructor. Same as 01Y:152.

108:153 Studies in Bookbinding 3 s.h.
Topics related to hand bookbinding. Prerequisite: consent of instructor. Same as 01Y:153.

108:154 Artists' Books 3 s.h.
Nontraditional binding structures; emphasis on innovative techniques and how parts of the book function. Prerequisite: 01Y:150 or 108:150 or consent of instructor. Same as 01Y:154.

108:155 Historical Book Structures 3 s.h.
Historical development of book structures examined through surviving examples, construction of historical models. Prerequisite: 01Y:150 or 108:150 or consent of instructor.

108:156 Boxes and Enclosures 3 s.h.
Hands-on techniques for a variety of book enclosures; appropriateness, aesthetic issues concerning box design; Japanese wraparound case, drop-spine box, hinged and lidded boxes, slipcase; technical skill development. Prerequisite: 108:150 or consent of instructor. Same as 01Y:156.

108:157 Moveable/Sculptural Books 3 s.h.
Varied formats for moveable and/or sculptural books; history; readings, hands-on model making. Same as 01Y:157.

108:158 Pop-Up Book Structures 3 s.h.
Hands-on exploration of varied aspects of paper engineering for bookmaking; historical and modern models studied and executed. Prerequisite: 108:150 or consent of instructor. Same as 01Y:158.

108:160 Introduction to Letterpress Printing 3 s.h.
Mechanics of letterpress printing, basic elements of typographic design as applied to letterpress edition printing; hand setting and printing from metal type on Vandercook proof presses; printing text and illustration from photopolymer plates; historical aspects of printing, early development of printing technologies, evolution of letterpress printing through 20th century. Same as 01P:160.

108:161 Handprinted Book: Design and Production 3 s.h.
Exploration of problems in hand-printing books—choice of manuscript, editing, design, typesetting, proofreading, printing and binding; histories of printing and of the book, emphasis on 20th-century book design and literature. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: consent of instructor. Same as 008:187, 01P:161.

108:162 Digital Book Design 3 s.h.
Students plan, design, and produce a book using Adobe Creative Suite; page layout software, typography, page layout and design, book formatting, handling of image files, preparation of materials for print and other contemporary book media; history of book design, book design in contemporary publishing; visit to University of Iowa Libraries Special Collections. Prerequisites: 01D:125 or 108:160 or consent of instructor. Same as 01P:162.

108:163 Digital to Letterpress Book Design 3 s.h.
Digital typesetting and book design; chapbook production using photopolymer plates and Vandercook presses; text and content, book typography, practical and aesthetic considerations. Prerequisite: consent of instructor. Same as 01P:163.

108:164 Digital Design for Artists' Books 3 s.h.
Introduction to concepts, techniques, and technologies used to design and produce artists' books with personal computers and graphic design software. Same as 01P:164.

108:165 Innovative Letterpress 3 s.h.
Creation of the visual book using letterpress printing; narrative, serialization, type as graphic, physical structure of the book; traditional letterpress printing, monoprinting, nontraditional letterpress techniques using technology ranging from metal to digital. Same as 01P:165.

108:166 Studies in Printing 3 s.h.
Special topics and advanced projects in printing. Prerequisite: consent of instructor.

108:170 Studies in Book Technologies 
Topics such as book design, printing, paper arts, letterforms, typography.

108:181 Literature and the Book 3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:130.

108:182 The Book in the Middle Ages 3 s.h.
Relation of text, decoration, function, creators, and audience in different genres of medieval manuscript books 400-1500 A.D. Prerequisite: 01H:005 or 16E:110 or consent of instructor. Same as 16E:120.

108:183 The Transition from Manuscript to Print 3 s.h.
Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as 021:258, 16E:118.

108:185 Introduction to Book Studies 3 s.h.
Theory and practice of book studies; meanings of word and image in the book format; comparative study of other media, applied study of the codex as physical artifact. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:134.

108:186 Topics in Book History 3 s.h.
Authorship, publishing, and so forth within specific historical and cultural contexts. English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: Early Literatures Through 17th Century, 18th- and/or 19th-Century Literature, or 20th- and/or 21st-Century Literature. Same as 008:190.

108:200 Special Project for Graduate Students arr.
Independent study.

108:201 Book Studies Workshop 1 s.h.
Discussion of issues central to book studies; workshop approach to current projects.

108:205 Final Project arr.
Project for graduate certificate.

108:210 Individual Instruction in Papermaking/Paperworks arr.
Traditional papermaking or creation of works of art using paper pulp as the medium; independent projects.

Prerequisite: consent of instructor.

Bookbinding and artists' book works; independent projects.

108:216 Individual Instruction in Printing arr.
Prerequisite: consent of instructor.

108:220 History of Readers and Reading 3 s.h.
Cultural nature of reading practices in historic and contemporary contexts of reading; reading communities; dimensions of gender, age, class, religion, race, ethnicity; examples of recent scholarship; use of primary resources; seminar. Prerequisite: 021:101 or consent of instructor. Same as 021:256.
108:224 Electronic Publishing 3 s.h.
Modes and methods for building electronic journals, books, thematic collections; new genres for publishing, including blogs, wikis, comics, short stories on the web; social, political, and economic forces that shape electronic publishing; XML-based project. Prerequisite: 021:120. Same as 021:224.

108:230 Topics in Book Studies 1-3 s.h.
Topics relevant to book studies and special collections. Prerequisites: 021:101 and admission to library and information science. Same as 021:249.

108:299 Book Studies Proseminar 1 s.h.
Genetics

Chair: Daniel Eberl (Biology)
Affiliated faculty: Christopher Adams (Internal Medicine), Michael Anderson (Molecular Physiology and Biophysics), Alexander Bassuk (Pediatrics), Jackie Bickenbach (Anatomy and Cell Biology), Terry Braun (Electrical and Computer Engineering), Kevin Campbell (Molecular Physiology and Biophysics), Thomas Casavant (Electrical and Computer Engineering), Chi-Lien Cheng (Biology), Josep Comeron (Biology), Robert Cornell (Anatomy and Cell Biology), Beverly Davidson (Internal Medicine), Deborah Dawson (Preventive and Community Dentistry), John Donelson (Biochemistry), Adam Dupuy (Anatomy and Cell Biology), Daniel Eberl (Biology), Jan Fassler (Biology), Michael Feiss (Microbiology), John Finger (Ophthalmo and Visual Sciences), Joseph Frankel (Biology), Pamela Geyer (Biochemistry), Pedro Gonzalez-Alegre (Neurology), Michael Henry (Molecular Physiology and Biophysics), Doug Houston (Biology), Erin Irish (Biology), Wayne Johnson (Molecular Physiology and Biophysics), Bradley Jones (Microbiology), John Kirby (Microbiology), Toshihiro Kitamoto (Anesthesiology), Al Klingelhutz (Microbiology), Anne Kwitek (Internal Medicine), Andrew Lidor (Orthodontics), Jim Jung-Ching Lin (Biology), Ana Lopart (Biology), John Logsdon (Biology), Robert Malone (Biology), John Manak (Biology), Bryant McAllister (Biology), Anton McCaffery (Internal Medicine), Paul McCray (Pediatrics), John Menninger (Biology), W. Scott Myoe-Rowley (Molecular Physiology and Biophysics), Jeff Murray (Pediatrics), Peter Nagy (Molecular Physiology and Biophysics), Shivanand Patil (Pediatrics), Robert Philibert (Psychiatry), Robert Piper (Molecular Physiology and Biophysics), Andrew Russo (Molecular Physiology and Biophysics), Todd Scheetz (Ophthalmo and Visual Sciences), Alberto Segre (Computer Science), Val Sheffield (Pediatrics), Ming-Che Shih (Biology), Curt Sigmund (Internal Medicine), Diane Slusarski (Biology), Richard Smith (Otolaryngology—Head and Neck Surgery), Edwin Stone (Ophthalmo and Visual Sciences), Kai Tan (Internal Medicine), Nelson Ting (Anthropology), Lori Wallrath (Biochemistry), Thomas Wassink (Psychiatry), David Weiss (Microbiology), Michael Welch (Internal Medicine/Molecular Physiology and Biophysics), Marcia Willing (Pediatrics), Mary Wilson (Internal Medicine), Chun-Fang Wu (Biology), Xing Yi (Internal Medicine)

Graduate degree: Ph.D. in Genetics
Web site: http://genetics.grad.uiowa.edu

Graduate Program

The program offers a Doctor of Philosophy in genetics.

Doctor of Philosophy

The Doctor of Philosophy in genetics requires a minimum of 72 s.h. of graduate credit. The Ph.D. program is designed to promote collaborative investigation and intellectual interaction among students and faculty participants affiliated with several different departments.

Students who enroll in the program are encouraged to obtain a broad background in genetics, including molecular, population, and human genetics. Within this context, course requirements are flexible enough to permit students to tailor their formal course work to their individual needs.

Students have the option to declare a Ph.D. emphasis in computational genetics.

All students enrolled in the program are required to take the following courses.

All of these:

127:150 Genetic Analysis of Biological Systems 3 s.h.
127:200 Special Topics in Genetics (seminar) 1 s.h.
156:201 Fundamentals of Gene Expression 1 s.h.
156:202 Fundamentals of Protein Regulation 1 s.h.
156:203 Fundamentals of Dynamic Cell Processes 1 s.h.

One of these:

002:171 Molecular Genetics 4 s.h.
142:210 Advance Prokaryotic Molecular Biology 3 s.h.

One of these:

002:131 Evolution 4 s.h.
002:168 Genes and Development 3 s.h.
127:191 Human Molecular Genetics 3 s.h.

All of these:

650:270 Principles of Scholarly Integrity 1 s.h.
Elective course work in molecular and microbial genetics, cell and development genetics, human genetics, or computational genetics 8 s.h.
Seminar courses approved by the program 5 s.h.
Even more important than formal course work is the opportunity to do significant research in genetics. Research interests of the participating faculty include virtually all areas of genetics, ranging from bacteriophage genetics to human medical genetics. In each area of genetics, there is a group of faculty members who have closely related interests.

The University is also strong in several related disciplines, including microbial physiology, enzymology, virology, protein biochemistry, computational genetics, and developmental and cell biology, all of which contribute significantly to the overall training program.

In addition to completing research and course work, students must pass a comprehensive examination, usually at the end of their second year in the program.

**Ph.D. and Medical Scientist Training Program**

Students may combine study toward an M.D. and a Ph.D. in genetics. See Medical Scientist Training Program (Carver College of Medicine) in the Catalog.

**Ph.D. and Dental Scientist Training Program**

Students with a D.D.S. degree may be candidates for advanced training programs in dentistry. For information, contact the College of Dentistry.

**Admission**

Prospective doctoral students in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, biochemistry, introductory physics, and mathematics, as well as a strong commitment to genetic research and teaching. Students can make up deficiencies in a particular area during their first year of graduate study.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission to the program is based on assessment of applicants' undergraduate academic records, performance on the Graduate Record Examination (GRE) General Test, and letters of recommendation. Admission requirements are not rigid. Most students working toward a Ph.D. in genetics at the University have an undergraduate g.p.a. above 3.50, and a combined verbal and quantitative score above 1250 on the GRE General Test. Students with lower grade-point averages or GRE scores may be admitted, depending on prior research experience and other indications of academic potential.

Students generally begin graduate work in the fall semester.

**Financial Support**

All genetics graduate students receive a financial stipend of $24,250 (academic year 2009-10) plus tuition.

Financial support comes from training grants, research assistantships, teaching assistantships, scholarships, individual research grants, or other departmental or college funds. All students are required to do some teaching as part of their development as future scientists and faculty members.

**Associated Courses**

The following courses provide credit toward the Ph.D. in genetics. Not all courses are offered every year.

- 002:131 Evolution: 4 s.h.
- 002:168 Genes and Development: 3 s.h.
- 061:268 Biology and Pathogenesis of Viruses: 2 s.h.
- 070:110 Medical Genetics: 2 s.h.
- 072:184 Developmental Neurobiology: 3 s.h.
- 099:237 Topics in Biochemistry and Molecular Biology: 1 s.h.
- 127:170 Bioinformatics: 3 s.h.
- 127:173 Computational Genomics: 3 s.h.
- 142:210 Advance Prokaryotic Molecular Biology: 3 s.h.
- 142:215 Transcription and Multifunctional Regulation by RNA: 1 s.h.
Genetics Courses

127:150 Genetic Analysis of Biological Systems 3 s.h.
Genetic techniques and approaches for analysis of biological processes; comparison of strengths, weaknesses of a variety of experimental systems.

127:170 Bioinformatics 3 s.h.
Overview of bioinformatics and genomics; requires working knowledge of basic concepts in genetics and molecular biology. Prerequisite: (for 002:170) grade of B+ or higher in 002:128 or consent of instructor. Prerequisites: (for 127:170) working knowledge of basic genetics and molecular biology concepts and grade of B+ or higher in 002:128, or consent of instructor. Same as 002:170.

127:173 Computational Genomics 3 s.h.
Same as 002:174, 051:122, 055:122.

127:176 Microarray Data Analysis 3 s.h.
Basic statistical principles and techniques used in bioinformatics, including analyzing microarray gene expression data. Offered spring semesters. Prerequisite: 22S:030 or 22S:101 or 171:161 or consent of instructor. Same as 002:176, 171:185.

127:191 Human Molecular Genetics 3 s.h.
Molecular genetic approaches to human disease; the human genome project, linkage analysis, candidate gene screening, special features of inbred populations, triplet repeat expansions, mitochondrial genetics, genetics of complex traits. Prerequisites: fundamental genetics and molecular biology, or consent of instructor.

127:200 Special Topics in Genetics 1 s.h.
Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series. Same as 060:200.

127:280 Directed Study in Genetics arr.

127:301 Graduate Research in Genetics arr.
Human Toxicology

Director: Larry W. Robertson (Occupational and Environmental Health/Free Radical and Radiation Biology/Radiation Oncology)
Associate director: Peter Thorne (Occupational and Environmental Health/Civil and Environmental Engineering)
Affiliated faculty: Garry Buettner (Free Radical and Radiation Biology/Radiation Oncology), A. Brent Carter (Internal Medicine), Frederick Domann (Free Radical and Radiation Biology/Radiation Oncology), Jonathan Doorn (Pharmacy), Michael Duffel (Pharmacy), R. William Field (Occupational and Environmental Health/Epidemiology), Laurence Fuortes (Occupational and Environmental Health), Frederic Gerr (Occupational and Environmental Health), Prabhat Goswami (Free Radical and Radiation Biology/Molecular and Cellular Biology/Radiation Oncology), Keri Hornbuckle (Civil and Environmental Engineering), Joel Kline (Immunology/Internal Medicine), Hans-Joachim Lehmler (Occupational and Environmental Health), Gabriele Ludewig (Occupational and Environmental Health), Paul McCray (Pediatrics/Genetics), David Murhammer (Chemical and Biochemical Engineering), Jerald Schnoor (Civil and Environmental Engineering), Douglas Spitz (Free Radical and Radiation Biology/Radiation Oncology), Jerrold Weiss (Immunology/Internal Medicine/Microbiology), Dale Wurster (Pharmacy)

Graduate degrees: M.S., Ph.D. in Human Toxicology
Web site: http://toxicology.grad.uiowa.edu/

Toxicology is the study of how biological, chemical, physical, and radiological agents affect living organisms and the ecosystem, and how to prevent or lessen the adverse effects of those agents. The Human Toxicology Program prepares toxicologists to identify and assess environmental exposures, identify mechanisms by which toxicants affect homeostasis or induce disease, identify interventions to prevent adverse effects, and estimate acceptable levels of exposure to protect public health.

The program is interdisciplinary, involving the Graduate College, the Carver College of Medicine, and the Colleges of Engineering, Liberal Arts and Sciences, Pharmacy, and Public Health.

The Human Toxicology Program is supported by an Iowa Superfund basic research program grant that supports six research projects and seven support cores, including a training core. Human toxicology faculty members are supported by the Environmental Health Sciences Research Center, a National Institute of Environmental Health Center of Excellence.

Graduate Programs

The Human Toxicology Program offers a Master of Science and a Doctor of Philosophy in human toxicology.

Master of Science

The Master of Science in human toxicology requires a minimum of 39 s.h. of graduate credit; a thesis is required. The program is designed for students who wish to pursue a master's degree as a second degree or through part-time study, particularly those who perform toxicologists' functions in their jobs and who need additional training.

Entering students should have backgrounds in the biological, engineering, and physical sciences and should have completed courses in introductory chemistry and biology, and organic chemistry.

After entering the program, students work with their assigned mentors to choose an advisory committee, which meets at least once a semester to help the student explore his or her research interests. The committee also provides consultation on course work and research activities and serves as the committee for the final examination (thesis defense).

The Human Toxicology Program is flexible. Students work with their advisory committees to plan a course of study tailored to their individual interests and goals within the field of toxicology.

All M.S. students must successfully complete a first course in toxicology, 175:260 Environmental Toxicology (3 s.h.) or 04 046:214 Pharmaceutical and Chemical Toxicology (3 s.h.); and an advanced course, 175:265 Advanced Toxicology (4 s.h.).

All toxicology graduate students are required to register for 198:180 Toxicology Research Seminar each semester of their enrollment in the program.

Upon successful completion of all requirements, including the thesis and its oral defense, students are awarded a Master of Science.

Doctor of Philosophy

The Doctor of Philosophy in human toxicology requires a minimum of 72 s.h. of graduate credit. The program is designed for students with backgrounds in the biological, engineering, and physical sciences. Entering students should have solid training in science, including courses in introductory chemistry and biology, and organic chemistry; knowledge of biochemistry and molecular biology is also useful. Students may remedy deficiencies by taking appropriate courses during their first year of graduate study.

Students begin the program with three 2-month rotations in the laboratories of participating faculty members, in order to identify a mentor. After the first year, the mentor assumes financial responsibility for the student. With advice from their mentors, students choose an advisory committee, which meets at least once a semester to help the student...
explore his or her research interests. The committee also provides consultation on course work and research activities and serves as the committee for the comprehensive examination and the final examination (dissertation defense).

The Human Toxicology Program is flexible. Students work with their advisory committees to plan a course of study tailored to their individual interests and goals within the field of toxicology.

All Ph.D. students must successfully complete a first course in toxicology, 175:260 Environmental Toxicology (3 s.h.) or 046:214 Pharmaceutical and Chemical Toxicology (3 s.h.); and an advanced course, 175:265 Advanced Toxicology (4 s.h.).

All toxicology graduate students are required to register for 198:180 Toxicology Research Seminar each semester of their enrollment in the program and to successfully complete 650:270 Principles of Scholarly Integrity within the first two years of graduate study.

After successfully completing the comprehensive examination, usually at the end of the second year of graduate study, students advance to Ph.D. candidacy. They devote all of their time to dissertation research and writing. Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Doctor of Philosophy.

Admission

Prospective students may apply to the program via a centralized application system; see Admissions Information on the Human Toxicology Program web site.

Completed applications should be submitted by January 15; applications submitted after that date are reviewed as they are received and are considered for any remaining openings.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Doctoral students in human toxicology receive stipends and tuition support from University of Iowa sources, including the Presidential Graduate Fellowship and graduate research assistantships, and from non-University sources, such as training grants from the National Institutes of Health.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the departments and colleges of Human Toxicology Program faculty members. These are among the best-equipped laboratories on campus. Together with the University’s central research facilities, they provide access to the most up-to-date research equipment and expertise.

Associated Courses

For course descriptions and prerequisite information, see the course listings in the College of Pharmacy (prefix 046) and Department of Occupational and Environmental Health (prefix 175) sections of the Catalog.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>046:214</td>
<td>Pharmaceutical and Chemical Toxicology</td>
<td>3 s.h.</td>
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<td>175:265</td>
<td>Advanced Toxicology</td>
<td>4 s.h.</td>
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Human Toxicology Courses

198:171 Special Problems in Toxicology
Didactic material that may include tutorial, seminar, or faculty-directed research work; or a special topic. Prerequisite: consent of advisor.

198:173 Toxicology Journal Club
Current topics in toxicology literature. Prerequisite: consent of advisor.

198:180 Toxicology Research Seminar
0-1 s.h.
Contemporary research topics.

198:201 Toxicology Research
Research that constitutes part of the thesis. Prerequisite: consent of advisor.

198:300 Thesis/Dissertation
Thesis or dissertation research; seminar preparation. Prerequisite: consent of advisor.
The Immunology Program provides interdisciplinary training in the concepts and methodologies of basic and applied immunology. Faculty members are involved in a variety of research projects dealing with the immune system at all levels--structural, functional, cellular, biochemical, and molecular. Students take course work in immunology and related disciplines and are involved directly in laboratory research throughout their study.

### Graduate Program

The Immunology Program offers a Ph.D. in immunology.

### Doctor of Philosophy

The Doctor of Philosophy in immunology requires a minimum of 72 s.h. of graduate credit. The program is quite flexible, accommodating students with a wide range of backgrounds in course work as well as practical experience in the biological and physical sciences. Entering students generally are expected to have strong records in biology, chemistry, biochemistry, microbiology, genetics, and mathematics. An introductory course in immunology is desirable. Deficiencies in specific areas often can be remedied through appropriate course work taken during the first year of graduate studies.

The curriculum consists of a sequence of required and elective courses that provide training in the conceptual and methodological aspects of immunology. There is ample opportunity for study in a variety of fields that interface with immunology.

The Ph.D. in immunology requires the following course work.

148:201 Graduate Immunology I 3 s.h.
148:211 Immunology Seminar (taken fall and spring of first year, spring of second year) 1 s.h.
148:221 Advanced Topics in Immunology 3 s.h.
156:204 Biostatistics for Biomedical Research 1 s.h.
650:270 Principles of Scholarly Integrity 1 s.h.

Elective courses (optional)

Students also complete six of the following (1 s.h. modules).

156:201 Fundamentals of Gene Expression (recommended) 1 s.h.
156:202 Fundamentals of Protein Regulation (recommended) 1 s.h.
156:203 Fundamentals of Dynamic Cell Processes (recommended) 1 s.h.

**Molecular biology:**

142:215 Transcription and Multifunctional Regulation by RNA 1 s.h.
142:216 Chromatin Structure and Disease 1 s.h.
142:217 Cancer, Epigenetics, and Genetic Manipulations in Mice 1 s.h.

**Cell biology:**

142:220 Protein Biogenesis, Transport, and Degradation in the Secretory/Endocytic System 1 s.h.
142:221 Control of Subcellular Motility 1 s.h.
142:222 Organelle Biogenesis 1 s.h.
142:225 Growth Factor Receptor Signaling 1 s.h.
142:226 Cell Cycle Control 1 s.h.
142:227 Cellular Differentiation and Stem Cell Biology 1 s.h.
After successfully completing the comprehensive examination, usually by the end of the second year of graduate study, students advance to candidacy for the Ph.D. They devote their time to research and writing their dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Ph.D. in immunology.

**Admission**

For information regarding admission and application procedures, contact the Immunology Program or visit its web site. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**Financial Support**

All students in the Immunology Program receive stipends and tuition support, which comes from a variety of sources, including training grants from the National Institutes of Health, University of Iowa fellowships and graduate research assistantships, and individual faculty research grants.

**Facilities**

Training is conducted in laboratories and teaching facilities of the Carver College of Medicine Departments of Internal Medicine, Pathology, Microbiology, Pediatrics, Pharmacology, and Urology. Faculty laboratories and central research core facilities provide students with access to state-of-the-art research equipment.

**Immunology Courses**

148:040 Summer Undergraduate IDGP Research
0 s.h.

148:201 Graduate Immunology I
3 s.h.
Ontogeny, activation, and function of T lymphocytes and B lymphocytes; innate immune effector mechanisms; major histocompatibility complex; antigen presentation; thymocyte positive and negative selection; signaling of T lymphocytes, B lymphocytes; emphasis on experimental methods for analysis of these processes. Prerequisites: (for 148:201) college biology, general chemistry, and introductory immunology courses. Recommended: (for 148:201) courses in biochemistry and genetics. Prerequisites (for 061:201) courses in college biology, genetics, general chemistry, and introductory immunology. Recommended: (for 061:201) biochemistry course. Same as 061:201.

148:202 Graduate Immunology II
3 s.h.
Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches. Prerequisites: college biology, general chemistry, and introductory immunology courses. Recommended: biochemistry and genetics courses. Same as 061:202.

148:211 Immunology Seminar
1 s.h.
Prerequisite: immunology graduate standing.

148:217 Integrated Topics in Infectious Diseases
1 s.h.
Clinical cases used to raise questions in host-parasite interactions; case/scientific exposés followed by related journal club discussions at next class session. Prerequisite: consent of instructor. Same as 061:217.

148:221 Advanced Topics in Immunology
3 s.h.
In-depth analysis of selected areas. Prerequisite: (for 148:221) 148:201 or 148:202. Prerequisites: (for 061:207) 061:201 and 061:202, or 148:201 and 148:202, or equivalents; and consent of instructor. Same as 061:207.

148:231 Research in Immunology
arr.
Laboratory research. Prerequisite: immunology graduate standing.

148:247 Graduate Survey of Immunology
4 s.h.
Major features of evolutionary, ontogenic, and comparative development of innate and adaptive immune systems; their functions at cellular and molecular levels. Offered fall semesters. Same as 061:247.
148:251 Principles of Medical Immunology 2 s.h.
Basic molecules, cells; organs of immune system; mechanics and regulations of immune response; clinical principles of normal and abnormal immunity. Prerequisite: M.D. enrollment.

148:301 Directed Study in Immunology arr.
Prerequisite: consent of instructor.
Informatics

Director: John C. Keller (Graduate College)
Affiliated faculty: Paul Abramowitz (Pharmacy), Michael Anderson (Molecular Physiology and Biophysics), Jose Assouline (Biomedical Engineering), Bill Ballard (Biology), Debashish Bhattacharya (Biology/Genetics), Warren Boe (Management Sciences), Shannon Bradshaw (Management Sciences), Terry Braun (Biomedical Engineering/Ophthalmology and Visual Sciences), Gregory Carmichael (Chemical and Biochemical Engineering), Thomas Casavant (Electrical and Computer Engineering/Genetics/Biomedical Engineering), Kathryn Chaloner (Biostatistics), Josep Comeron (Biology), Mary Cowles (Statistics and Actuarial Science), James Cremer (Computer Science), Faiz Currim (Management Sciences), Beverly Davidson (Genetics/Molecular and Cellular Biology), Isabel Darcy (Mathematics), Deborah Dawson (Preventive and Community Dentistry), Frederick Domann (Radiation Oncology), John Donelson (Biochemistry), David Eichmann (ICTS/Library and Information Science), Adrian Elcock (Biochemistry), James Elmborg (Library and Information Science), John Engelhardt (Anatomy and Cell Biology), Jan Fassler (Biology/Genetics), Elizabeth Field (Internal Medicine), Robert Forsythe (Economics), Lilach Hadany (Biology), Stephen Hendrix (Biology), Haowei Hsieh (Library and Information Science), Jian Huang (Statistics and Actuarial Science/Biostatistics), Mark Janis (Law), Michael Jones (Biostatistics), Patricia Katopol (Library and Information Science), Joe Kearney (Computer Science), Michael Kienzle (Internal Medicine), Al Klingelhutz (Microbiology), Naresh Kumar (Geography), Sheldon Kurzt (Law), Andrew Kusiak (Mechanical and Industrial Engineering), Yi Li (Mathematics), Jack Lilen (Biology), Jim Lin (Biology/Genetics), John Logsdon (Biology/Genetics), Der-Fa Lu (Nursing), Michael Mackey (Biomedical Engineering), Bryant McAllister (Biology), Paul McCray (Pediatrics/Genetics), Geoffrey McLennan (Internal Medicine), Colleen Mitchell (Mathematics), Kevin Moores (Pharmacy), Peter Nagy (Pathology), Andrew Norris (Pediatrics), Joseph Reinhardt (Biomedical Engineering), John Robinson (Electrical and Computer Engineering), Tom Rocklin (Psychological and Quantitative Foundations), Andrew Russo (Molecular Physiology and Biophysics/Genetics/Biosciences), Todd Scheetz (Ophthalmology and Visual Sciences/Biomedical Engineering), Jerald L. Schnoor (Civil and Environmental Engineering/Occupational and Environmental Health), Alberto Segre (Computer Science/Public Health Genetics), Val Sheffield (Pediatrics/Genetics), Ming-Che Shih (Biology/Genetics), Curt Sigmund (Internal Medicine), Richard Smith (Otolaryngology–Head and Neck Surgery/Genetics), David Soll (Biology), Bernard Soroofman (Pharmacy), Christopher Spuler (Dentistry), Padmini Srinivasan (Computer Science/Library and Information Science/Management Sciences/Nursing), Jack Stapleton (Internal Medicine), John Stokes (Internal Medicine), Edwin Stone (Ophthalmology and Visual Sciences/Genetics), Nick Street (Management Sciences/Computer Science), Ramaswamy Subramaniam (Biochemistry), Luke Tierney (Statistics and Actuarial Science), Tanya Uden-Holman (Health Management and Policy/Nursing), Douglas Wakefield (Health Management and Policy), Linda Walton (Hardin Library for the Health Sciences), Marcia Ward (Health Management and Policy), Thomas Wassink (Psychiatry), Kai Wang (Biostatistics/Public Health Genetics), George Weinra (Internal Medicine), Michael Welsh (Internal Medicine), Stephen Wieting (Sociology), Ying Zhang (Biostatistics)

Graduate nondegree program: Certificate in Informatics
Web site: http://informatics.grad.uiowa.edu

The field of informatics springs from the intersection of computational disciplines related to the humanities, the arts, and the biological, health, natural, and social sciences. As the rapid development of information technology transforms the world of human pursuits, informatics offers ways to solve new problems and to examine existing problems from new perspectives.

The Informatics Program provides graduate students the opportunity to study informatics in the broadest sense. The program is interdisciplinary, involving the Graduate College, the Carver College of Medicine, and the Colleges of Engineering, Liberal Arts and Sciences, Nursing, and Public Health.

Graduate Programs

The Informatics Program offers a Master of Science and a Doctor of Philosophy in informatics, both with a health informatics subtrack and an information science subtrack. It also offers the Certificate in Informatics, with a bioinformatics and computational biology subtrack, a health informatics subtrack, and an information science subtrack.

Master of Science

The Master of Science in informatics requires a minimum of 32 s.h. of graduate credit. It is offered with subtracks in health informatics and in information science. Students working toward a Doctor of Philosophy in informatics may be granted a Master of Science upon completion of the M.S. requirements.

The required 32 s.h. includes 9 s.h. in foundations of informatics and at least 9 s.h. in disciplinary applications of informatics.

Students select an advisor from their subtrack's affiliated faculty members. In consultation with their advisors, students prepare a study plan, which is reviewed at least once a year. Students who do not already hold an M.S. from The University of Iowa may request that one be granted to them at the doctoral comprehensive exam. A final master's examination, not related to the Ph.D. comprehensive exam, may be required.

For more information about the Master of Science requirements, visit the Informatics Program web site.

Doctor of Philosophy

The Doctor of Philosophy in informatics requires a minimum of 72 s.h. of graduate credit. It is offered with subtracks in health informatics and in information science.

The required 72 s.h. includes 9 s.h. in foundations of informatics and at least 9 s.h. in disciplinary applications of informatics.

Students select an advisor from their subtrack's affiliated faculty members. In consultation with their advisors, students prepare a study plan, which is reviewed by their mentors and curricular advisory committees at least once a year. Ph.D. students must pass a comprehensive examination at or near completion of their course work requirements. The exam may be written, oral, or both, depending on the structure of the student's subtrack or the decision of the student's committee. Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Doctor of Philosophy.
For more information about the Doctor of Philosophy requirements, visit the Informatics Program web site.

Certificate

The Certificate in Informatics requires a minimum of 18 s.h. of graduate credit and is offered with subtracks in bioinformatics and computational biology; in health informatics; and in information science. The program is designed for students who wish to complement their graduate degree programs with knowledge of informatics.

The 18 s.h. required for the certificate includes 9 s.h. in the foundations of informatics and at least 9 s.h. in disciplinary applications of informatics. Work toward the certificate may not be substituted completely for courses or examinations required by the student's graduate degree program.

For more information about certificate requirements, visit the Informatics Program web site.

Admission

Applicants to the M.S. or Ph.D. program should apply to the degree subtrack of their choice. The subtrack programs make independent admission decisions.

Applicants to the certificate program should apply to the subtrack of their choice. They must be in good academic standing in their graduate degree programs.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Informatics Courses

200:110 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 074:191, 096:283, 174:226.

200:120 Health Informatics II 3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as 021:280, 051:189, 056:287, 074:192, 096:289.

200:201 Leadership and Management in Complex Health Care Systems 3 s.h.
Introduction to complex systems theory in the biological, physical, and social sciences; applications in decision-making processes, change management, organizational effectiveness, and implementation of technology; interdisciplinary approach. Prerequisite: graduate standing.

200:220 Social Informatics 3 s.h.
Study of information and communication tools (ICTs) in cultural or institutional contexts; how ICTs are conceptualized, disseminated, and used in everyday and specialized environments such as libraries, education settings, corporations, local communities, cultural groups, political campaigns, and Web 2.0. Prerequisite: 021:101. Same as 021:210.

200:296 Topics in Informatics arr.
Current topics in informatics. Prerequisite: consent of instructor.

200:297 Readings in Informatics arr.
Topics not covered in other courses; individual study. Prerequisite: consent of instructor.

200:298 Independent Study arr.
Prerequisite: consent of instructor.

Prerequisites: Ph.D. candidacy and consent of instructor.
The International Writing Program is a unique residency program for established writers from outside the United States. IWP participants range from emerging talents to writers who are among their countries' leading literary figures and writers of world stature.

Each fall the International Writing Program assembles a community of poets, fiction writers, essayists, playwrights, and journalists. For most of them, the IWP is their first, or their first extended, stay in the United States. At the University they live and interact with each other while working on writing and translation projects. Throughout their residency, they participate in 181:191 International Literature Today and in 181:205 International Translation Workshop. They also interact with the public through readings, panel discussions, and other presentations.

Since 1967, more than 1,000 writers from 115 countries have participated in the program.

International Writing Program participants are supported by the U.S. Department of State, through bilateral agreements with many countries, by grants from cultural institutions and governments abroad, and by private funds. The program does not provide grants for writers.

For more information, contact the International Writing Program or visit the program's web site.

International Writing Program Courses

181:001 Readings for Writers 1 s.h.
Introduction to the Iowa City writing community; attendance at readings by professional, faculty, and student writers; students keep journals about readings.

Directed readings in contemporary world literature.

181:110 Comparative Arts 3 s.h.
Cultural and aesthetic issues arising from side-by-side investigation of several art forms, including literature, cinema, painting, music, opera, architecture; periods, schools, styles, and their theories. Same as 033:110, 048:110.

181:152 America in Other Words 1-3 s.h.
Current idea of America in its imaginary form: post-1989 world fiction, poetry, and film in original language, in translation, and via online translation resources. Same as 048:152.

181:191 International Literature Today 1-3 s.h.
English majors may apply this course to the following area and/or period requirement. AREA: Transnational Literature and Culture. PERIOD: 20th- and/or 21st-Century Literature. Same as 008:191.

181:205 International Translation Workshop 1-3 s.h.
International writers pair with University of Iowa translators to write new works of poetry and fiction in English; second-language fluency not required for international writers. Same as 048:205.

181:247 Crossing Borders Seminar 2-3 s.h.

181:260 Translation Workshop 3 s.h.
Prerequisites: at least one foreign language and consent of instructor. Same as 048:260, 08W:260.
Today's age is defined by the intersection of information, technology, and human creativity. In this context, library and information science is dedicated to understanding the nature of information, the interaction between information and communication technologies, the relationship between information and knowledge, the cognitive and affective aspects of knowledge acquisition, and the interface between people and information. It offers new knowledge, technological benefits, and professional expertise for every dimension of human affairs.

Library and information professionals take on many challenges in serving the needs of their constituencies—children and teachers, members of academic communities, employees of profit and nonprofit organizations, and the public at large—constituencies that range from information poor to information rich. They work in the contexts of issues such as information and communication technology, public and private information policy, managerial policy, and regional, national, and international economics.

The School of Library and Information Science prepares professionals to meet these diverse challenges. It offers a graduate-level program of preparation for careers in all types of libraries and information centers, providing students with a strong, well-rounded education in an environment that supports individuals from all segments of a multicultural, multiethnic, and multilingual society. Its curriculum reflects the profession's immediate and long-range needs and prepares students to be leaders in a changing field.

By promoting excellence in research, the school contributes to the base of theoretical and practical knowledge in library and information science and helps develop an understanding of how to meet the varied and changing information needs of individuals and society. It also provides public service through continuing education programs, selective consulting services for library and information centers, and participation in professional organizations.

The school strongly encourages its students, faculty members, and alumni to shape the future of the profession by filling key roles in organizations involved in all aspects of the information cycle.

**Graduate Programs**

The school offers a Master of Arts in library and information science. It offers the joint J.D./M.A. with the College of Law, the joint M.B.A./M.A. with the Tippie College of Business, and the joint M.A./Certificate in Book Studies/Book Arts and Technologies with the Center for the Book. Library and information science students also may earn the Certificate in Informatics.

The Master of Arts in library and information science has held continuous accreditation from the American Library Association since 1971.

Library science graduates have many options for employment. Alumni hold positions in public, school, special, and academic libraries as well as other information settings. They serve in varied roles, such as information consultant, database manager, library administrator, webmaster, network coordinator, cataloger, children's librarian, school library media specialist, and archivist.

**Master of Arts**

The Master of Arts in library and information science requires 36 s.h. of graduate credit. A thesis option is available for students who seek additional research experience.

Students pursuing the master's degree gain an understanding of the foundations of the library and information profession, including the history of the field, ethical and philosophical concerns, the information cycle, principles and procedures for dealing with a variety of information carriers, and the theory and practice of strategic management. They examine future trends, with emphasis on cutting-edge technological concerns. They study the discipline's research base, gaining heightened awareness of the synergism between library and information science and other disciplines, as well as the close relationship between research and practice. Finally, students become knowledgeable about the factors that underlie users' information needs and appropriate strategies to satisfy those needs.

Students typically complete the program in a year and one-half to two years. The maximum allowable load for graduate students is 15 s.h. during regular semesters and 8 s.h. during summer sessions, but most full-time students carry fewer semester hours than the maximum. It also is possible to complete the program on a part-time basis.
Work for the degree includes 9 s.h. in three required, introductory-level courses; 12 s.h. in secondary-level courses; 15 s.h. in electives; and the successful completion of a poster presentation. Students must maintain a g.p.a. of at least 3.00.

Students may apply a maximum of 9 s.h. of graduate transfer credit in library and information science or related areas toward the degree, subject to the approval of the transfer credit committee. Approval is given course-by-course and is determined by the course's content, currency, and applicability to the student's program.

The curriculum has three tiers. The first tier consists of three required courses that provide a solid grounding for all successive course work: 021:101 Cultural Foundations, 021:120 Computing Foundations, and 021:122 Conceptual Foundations. The second tier includes 10 courses; students must take at least four of them and may include 021:260 Organizational Management or 021:262 School Library Media Administration, but not both. Courses in the third tier are electives. This three-tier arrangement allows each student to concentrate in an area that most closely matches his or her professional goals.

**TIER I**

All of these:

- 021:101 Cultural Foundations 3 s.h.
- 021:120 Computing Foundations 3 s.h.
- 021:122 Conceptual Foundations 3 s.h.

**TIER II**

Four of these:

- 021:124 Database Systems 3 s.h.
- 021:202 Research Methods 3 s.h.
- 021:205 Literacy and Learning 3 s.h.
- 021:210 Social Informatics 3 s.h.
- 021:226 Digital Environments 3 s.h.
- 021:236 Use and Users 3 s.h.
- 021:242 Search and Discovery 3 s.h.
- 021:278 Information Policy 3 s.h.

- 021:260 Organizational Management 3 s.h.
  or
- 021:262 School Library Media Administration 3 s.h.

**TIER III**

Students choose electives from the following courses.

- 021:123 User Education: Multimedia 3 s.h.
- 021:141 Reference and Information Services 3 s.h.
- 021:143 Resources for Children 3 s.h.
- 021:144 Resources for Young Adults 3 s.h.
- 021:145 Resources for Adults 3 s.h.
- 021:222 Beginning Cataloging and Classification 3 s.h.
- 021:223 Advanced Cataloging and Classification 3 s.h.
- 021:224 Electronic Publishing 3 s.h.
- 021:228 Hypertext Systems 3 s.h.
- 021:234 Information and Knowledge Management 3 s.h.
- 021:239 Topics: Conceptual Structures/Systems 1-3 s.h.
- 021:240 Collection Management 3 s.h.
- 021:244 Government Information Resources 3 s.h.
- 021:248 Information Literacy 3 s.h.
- 021:249 Topics in Book Studies 1-3 s.h.
- 021:254 Analysis of Scholarly Domains 3 s.h.
Specializations

Students earn 15 s.h. in elective courses selected with the guidance of their advisors. Students' programs often are designed around particular career goals. Following are examples of possible specializations.

PUBLIC LIBRARIES

Public libraries provide informational, educational, and recreational materials and a wide range of services for a diverse clientele. Although public libraries receive the bulk of their funding from local taxes, they also may be organized on a regional or statewide cooperative basis. The variety of uses, services, materials, and organizational structures of public libraries makes this a challenging area of librarianship. Public librarians need to develop skills in analyzing the communities they serve, designing comprehensive marketing plans to meet their needs, implementing the plans in a cost-effective way, and evaluating the success of their efforts.

ACADEMIC LIBRARIES

The academic library, whether in a community college, a four-year college, or a university, provides information services in support of the parent institution's teaching, research, and public service missions. These services include instruction in the use of the library and its resources. Management skills and subject or language competence often are required. Since librarians in this setting usually are considered academic faculty members, a second master's or other advanced degree is desirable.

SPECIAL LIBRARIES AND INFORMATION CENTERS

Special libraries serve corporations, private companies, government agencies, technical and academic institutions, museums, medical facilities, and information management consulting firms. They are organized to anticipate and quickly respond to the specific information needs of their users. Special librarians are information resource experts who collect, analyze, evaluate, package, and disseminate information to facilitate accurate decision making. Knowledge of information technology and the ability to design services suitable to the parent organization are professional necessities. In addition, substantial subject expertise may be required.

SCHOOL LIBRARY MEDIA CENTERS

The school library media center makes available to students and teachers a wide range of library and instructional materials in a variety of formats. The work of the library media specialist includes providing instruction to students in accessing, evaluating, and using information; collaborating with teachers on the use of resources in instruction; providing leadership in the use of instructional and information technologies; offering reading guidance; providing reference service; and managing the library media center. The University of Iowa offers a state-approved program leading to endorsement as school media specialist K-12. In order to fulfill state requirements for this endorsement, students must hold or be eligible for a teaching license and must complete a designated sequence of courses that leads both to certification and to the M.A. degree.

INFORMATION SCIENCE
The multidisciplinary field of information science is influenced by the rapid growth in digital information collections and technologies. This specialization offers expertise in retrieval, dissemination, and use of information. In addition to libraries and information centers, many for-profit organizations are finding that information is a valuable commodity in today's competitive world and are employing information management personnel. The curriculum offers opportunities to study information science aspects, such as digital libraries, electronic publishing, and automated systems design.

**Joint Master’s Degrees**

The School of Library and Information Science offers a joint Master of Arts/Master of Business Administration with the Tippie College of Business and a joint Juris Doctor/Master of Arts with the College of Law. The primary goal of the joint programs is integration of the two areas of study.

Students in the joint programs may apply a limited amount of credit toward both degrees. Up to 9 s.h. in business or law may be applied toward the M.A. in library and information science; up to 9 s.h. in library and information science may be applied toward the M.B.A., and 12 s.h. may be applied to the J.D.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. For more information, see College of Law or Master of Business Administration Program in the Catalog.

In addition to the joint M.A./M.B.A. and J.D./M.A., joint programs may be arranged between departments on an ad hoc basis. A minimum of 60 s.h. of graduate work is required for a joint master's degree program.

**Joint M.A./Book Studies Certificate**

Students interested in special collections, book arts, or museum librarianship may pursue an M.A. in library and information science in conjunction with a graduate Certificate in Book Studies/Book Arts and Technologies. The joint program also may be appropriate for students interested in book studies scholarship and those seeking careers in publishing, graphic arts, or book-related industries that require a similar blend of subject and technical knowledge.

The joint program requires a total of 51 s.h. At least 27 s.h. must be earned in the M.A. program, at least 15 s.h. must be earned in the certificate program, and the remaining 9 s.h. may be earned in either program.

To enroll in the joint program, students must be admitted both to the School of Library and Information Science and to the Center for the Book, and must fulfill the basic requirements of each program.

**Informatics Certificate**

Students interested in careers involving health science libraries or hospital information centers may earn a Certificate in Informatics with the optional health informatics subtrack. The certificate is offered by the Graduate College together with several other University colleges and departments. Its health informatics subtrack emphasizes the organization, management, and use of health care information; health care research, education, and practice; and information technology developments in the socioeconomic context of health care.

The certificate requires at least 18 s.h. of course work, including 021:275 Health Informatics I, 021:280 Health Informatics II, and approved electives. Students may earn the Certificate in Informatics with the health informatics subtrack in conjunction with their M.A. in library and information science. Visit [http://www.uiowa.edu/health-informatics](http://www.uiowa.edu/health-informatics) for more information.

**Honor Society**

The Beta Beta Theta Chapter of Beta Phi Mu, the international honor society for library and information science, is located at The University of Iowa. Each year new members are chosen from the top 25 percent of the preceding year's graduating classes. To be eligible for membership, graduates must achieve a g.p.a. of at least 3.75, demonstrate professional promise, and be recommended by the faculty.

**Student Organizations and Activities**

All students in the program are automatically members of LISSO, the Library and Information Science Student Organization, which also serves as the student chapter of the American Library Association. In addition, there are student chapters of the American Society for Information Science and Technology and Special Libraries Association. These student-run organizations sponsor various activities such as speaker series, a journal club, workshops, brown bag lunches, and picnics. The associations provide students with significant opportunities for professional and extracurricular growth. Students also are encouraged to join other state and national professional organizations.

**Admission**
Applicants for admission to the M.A. program are required to have a g.p.a. of at least 3.00 on a 4.00 scale and are required to have a verbal and quantitative score of at least 1000 and an analytical writing score of at least 4 on the Graduate Record Examination. The admissions committee also considers each applicant's letters of recommendation, statement of purpose, and other appropriate criteria. Each entering class is selected on a competitive basis.

Applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). In place of TOEFL, the school accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0. Applicants who submit IELTS scores are required to take an on-campus English proficiency evaluation.

Applicants begin the admission process by contacting the School of Library and Information Science. The process requires a completed application form, transcripts of all academic work, a written statement of purpose and goals, and three letters of recommendation.

Completed applications should be received by the school by February 1 for consideration for fall admission. Decisions of the admissions committee are announced four to six weeks after the deadline. Late applications are considered if places are still available. Financial aid often is not available for late applicants. Admitted students are immediately assigned a faculty advisor for program planning.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

The School of Library and Information Science awards partial-tuition scholarships and one-quarter-time graduate assistantships. To be considered for scholarships, applicants should have an undergraduate g.p.a. of at least 3.00 and a combined score (verbal, quantitative, and analytical) of 1700 on the old Graduate Record Examination (GRE) General Test, or 1100 (verbal and quantitative) and 4.5 (analytical writing) on the new GRE. Prospective students are urged to apply for scholarships before February 1. Graduate assistantships are advertised as they become available; students should apply for specific assistantships.

For information on student loans, work-study eligibility, or other financial assistance, contact the Office of Student Financial Aid. For information on national scholarships, contact the School of Library and Information Science or visit its web site. Part-time employment usually is available in the University Libraries and other campus units.

Job Placement

The school provides active placement assistance to its graduates through printed and electronic announcements, seminars on Internet job searching, résumé writing and interviewing, and personal counseling. The University's Educational Placement Office issues a regular listing of job openings and provides a credential file service.

According to the annual placement survey in Library Journal, Iowa's placement rate consistently ranks among the highest for ALA-accredited programs. Iowa graduates find positions in all types of libraries. The placement distribution for six recent years was: academic libraries, 38 percent; public libraries, 28 percent; special libraries, 17 percent; and school libraries, 17 percent. Iowa graduates currently work in libraries in 46 states and 9 foreign countries. Strong personal and academic qualifications, job flexibility, and geographic mobility are important factors in obtaining a position.

Facilities, Resources

The School of Library and Information Science is housed in the south wing of the University's Main Library, in a setting that promotes community among students, faculty, and staff. Facilities are provided for the varied instructional and research activities of the school.

Technology Laboratory

The school houses a state-of-the-art technology laboratory with current Windows and Macintosh computers. The computers are networked to the campus backbone and provide access to a rich variety of relevant software. The laboratory is used primarily by students for course assignments and to gain experience with specialized software. In addition, the classrooms are equipped with networked machines that allow faculty members to use teaching technologies in their courses. An Apple XServer is used to deliver and maintain a common software environment. Students have access to Dialog, LexisNexis, OCLC databases, Westlaw, and a wide variety of library automation products. They also are given an account for file storage.

University of Iowa Libraries

All of the resources of the University of Iowa Libraries are available to the school's students and faculty. The system contains more than 4 million volumes in the Main Library and 11 departmental libraries.
The web-based catalog provides access to books and periodicals, electronic indexes, and full-text databases held by University Libraries. In addition, the InfoHawk Catalog to online resources provides access to selected Internet and CD-ROM resources arranged by subject and academic discipline. Wireless Internet access is available in many areas of the Main Library.

Students also have full access to the Information Arcade, which facilitates integration of new information and multimedia technologies with learning and research. Here students find a variety of electronic resources for learning advanced information skills and for gaining access to information in various formats and through various networks, including the Internet. The Arcade also houses an electronic classroom.

The third floor of the Main Library houses the map collection and Special Collections & University Archives, including the Iowa Women's Archives.

Other Libraries

Students have access to a variety of libraries through field trips, practicum experience, and personal use: the State Historical Society of Iowa library in Iowa City; the Iowa City, Coralville, and Cedar Rapids public and school libraries; the Augustana, Coe, Cornell, Mount Mercy, and Grinnell College libraries; and the Herbert Hoover Presidential Library and Museum in West Branch.

Other Resources

Lindquist Center, across the street from the Main Library, houses the College of Education Curriculum Resources Laboratory and Education Technology Center. The Curriculum Resources Laboratory contains an extensive collection of book and nonbook instructional materials for children in preschool through grade 12. It is especially valuable for students interested in school or public library work.

Lindquist Center also houses the instructional services and campus services departments of the University's Information Technology Services. It provides instructional and research computing facilities and services for the University community. All University students, staff, and faculty may use the center's computers for University-related research, thesis preparation, and class work. Instructional Technology Centers provide campuswide access to the University's academic computing resources and the Internet.

Library and Information Science Courses

**021:090 Information Handling**
Gathering, evaluating, and employing information from library and nonlibrary sources, including multimedia and electronic systems. Prerequisite: undergraduate standing.

**021:101 Cultural Foundations**
The role of libraries and information agencies in society; major issues, including information policy, professional ethics, literacy, diversity, technology, pedagogy. Prerequisite: admission to library and information science or consent of instructor.

**021:120 Computing Foundations**
Introduction to analysis, specification, and design of automated systems; review of the software life cycle; testing, deployment, and evaluation of large, computer-based software. Prerequisite: admission to library and information science or consent of instructor.

**021:122 Conceptual Foundations**
Theory, principles, and standards in organization of information; function of catalogs, indexes, bibliographic networks; introduction to metadata descriptions, name and title access, subject analysis, controlled vocabularies, classification systems. Prerequisite: admission to library and information science or consent of instructor.

**021:123 User Education: Multimedia**
Learning theory as it relates to design of multimedia products for user education; presentation of information using multimedia technology in a Macintosh environment; development of user education products in linear and nonlinear forms.

**021:124 Database Systems**
Design and development of a database-driven information system, including interfaces, database schema, and essential database operations; focus on widely used relational database model. Prerequisite: 021:120.

**021:139 Topics: Conceptual Structures and Systems**
1-3 s.h.
Service-learning course for graduate students and undergraduate students at the junior and senior level; hands-on library work under supervision of professional librarian with a final project presentation.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>021:141</td>
<td>Reference and Information Services</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Resources and services; essential reference services and experience using a variety of print and electronic resources to answer specific reference questions. Prerequisite: 021:101.</td>
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<td>021:143</td>
<td>Resources for Children</td>
<td>3 s.h.</td>
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<td></td>
<td>Evaluation and use of books, magazines, electronic media, and other sources of information and recreation in relation to youth development. Prerequisite: 021:101 or consent of instructor.</td>
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<tr>
<td>021:144</td>
<td>Resources for Young Adults</td>
<td>3 s.h.</td>
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<td></td>
<td>Topics related to populations served by youth services departments (e.g., societal issues, informational needs); seminar. Prerequisite: 021:101 or consent of instructor.</td>
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<tr>
<td>021:145</td>
<td>Resources for Adults</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Role of libraries in meeting adults' informational and recreational needs; popular culture materials, Reader's Advisory services, lifelong learning. Prerequisite: 021:101 or consent of instructor.</td>
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<td>021:202</td>
<td>Research Methods</td>
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<td></td>
<td>Concepts and methods for research in library and information science; emphasis on design of qualitative and quantitative research; data collection techniques appropriate to information professions; examination and evaluation of research in the professional literature.</td>
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<td>021:205</td>
<td>Literacy and Learning</td>
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<td></td>
<td>Learning and literacy theory relevant to work in information services; how librarians can help people process information and use it to form understanding and create new knowledge. Prerequisite: 021:101.</td>
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<tr>
<td>021:210</td>
<td>Social Informatics</td>
<td>3 s.h.</td>
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<td></td>
<td>Study of information and communication tools (ICTs) in cultural or institutional contexts; how ICTs are conceptualized, disseminated, and used in everyday and specialized environments such as libraries, education settings, corporations, local communities, cultural groups, political campaigns, and Web 2.0. Prerequisite: 021:101. Same as 200:220.</td>
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<td>021:222</td>
<td>Beginning Cataloging and Classification</td>
<td>3 s.h.</td>
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<td>Systems for describing materials and information in catalogs and organizing them for effective retrieval in libraries, museums, and other information centers; AACR2 descriptive principles, Dewey and Library of Congress classifications, Sears and LC subject headings, cataloging networks and services. Prerequisite: 021:122.</td>
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<tr>
<td>021:223</td>
<td>Advanced Cataloging and Classification</td>
<td>3 s.h.</td>
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<td>Special problems in description of materials; authority work; file structures; serials, other nonmonographic materials; Library of Congress, other classifications; subject retrieval; reclassification, other administrative issues; international bibliographic criteria; online cataloging experience. Prerequisite: 021:222.</td>
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<tr>
<td>021:224</td>
<td>Electronic Publishing</td>
<td>3 s.h.</td>
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<td>Modes and methods for building electronic journals, books, thematic collections; new genres for publishing, including blogs, wikis, comics, short stories on the web; social, political, and economic forces that shape electronic publishing; XML-based project. Prerequisite: 021:120. Same as 108:224.</td>
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<td>021:226</td>
<td>Digital Environments</td>
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<td>Methods and models for building digital libraries; organization with metadata; standards such as those for object identifiers, open access, building cross-linkages between collections; automatic harvesting of content. Prerequisite: 021:120.</td>
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</tr>
<tr>
<td>021:228</td>
<td>Hypertext Systems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Theory, design, and implementation of hypertext-based information systems; access mechanisms, including navigation, browsing, search; issues in representation of information, user interfaces; case studies of representative systems, including the World Wide Web. Prerequisite: 021:120.</td>
<td></td>
</tr>
<tr>
<td>021:234</td>
<td>Information and Knowledge Management</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
How organizations acquire, manage, and use information; knowledge management and competitive intelligence, information from inside and outside the organization; organization types, including library, corporate, and nonprofit. Corequisite: 06K:230. Same as 06K:234.

021:236 Use and Users 3 s.h.
Information needs and uses; theories and models of information seeking and use, formal and informal information channels, barriers to information. Prerequisite: 021:101.

021:239 Topics: Conceptual Structures/Systems 1-3 s.h.
Special topics relevant to conceptual structures (e.g., knowledge, representation, manipulation schemes) and systems (e.g., intelligent OPACS, user interface technologies). Repeatable. Prerequisite: 021:122.

021:240 Collection Management 3 s.h.
Collection management of print and electronic resources; selection and management principles, policies, procedures in various settings; production and distribution of resources; intellectual freedom. Prerequisites: 021:101 and 021:122.

021:242 Search and Discovery 3 s.h.
Search system architecture; information needs and queries; search models; concepts in relevance and repositories, archives, web-based systems; information quality measures.

021:244 Government Information Resources 3 s.h.
Emphasis on federal documents as an information resource; state, local, foreign, international materials; special concerns of organizing and administering document collections. Prerequisite: 021:141.

021:248 Information Literacy 3 s.h.
Design of information literacy curriculum and teaching strategies relevant to libraries; theory and research in learning and cognitive development; practice teaching strategies in library settings. Prerequisite: 021:101.

021:249 Topics in Book Studies 1-3 s.h.
Topics relevant to book studies and special collections. Prerequisites: 021:101 and admission to library and information science. Same as 108:230.

021:252 Human Computer Interaction 3 s.h.
Design user interfaces for interacting with information, emphasis on system design and evaluation (as opposed to system implementation); construct interface prototypes, conduct evaluations of design. Prerequisite: 021:120.

021:254 Analysis of Scholarly Domains 3 s.h.
Information transfer in academic disciplines; scientific method, other means of knowledge construction, resulting literatures; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences. Prerequisite: (for 021:254) 021:141. Same as 160:230.

021:256 History of Readers and Reading 3 s.h.
Cultural nature of reading practices in historic and contemporary contexts of reading; reading communities; dimensions of gender, age, class, religion, race, ethnicity; examples of recent scholarship; use of primary resources; seminar. Prerequisite: 021:101 or consent of instructor. Same as 108:220.

021:258 The Transition from Manuscript to Print 3 s.h.
Western manuscripts and books 1200-1600; changes in production and distribution methods and in how texts were used, in cultural context. Same as 108:183, 16E:118.

021:259 Topics: Resources/Services 1-3 s.h.
Current topics in types of information resources and services.

021:260 Organizational Management 3 s.h.
Survey of management issues common to all information environments—understanding organizations, decision making, hiring and personnel, grant writing, and marketing. Prerequisite: 021:101.

021:261 Strategic Management 3 s.h.
Management and administration of all types of libraries; basics of leadership and teamwork, management issues, and skills in context of the organization.
021:262 School Library Media Administration
Design of library media programs for the major functions of teaching and learning, information access, and program administration; focus on curricular and teaching responsibilities of school librarians and media specialists, development of philosophy, examination of roles and responsibilities, and program evaluation. Prerequisite: 021:101.

021:263 Nonprofit Organizational Effectiveness I

021:265 Nonprofit Organizational Effectiveness II
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 024:248, 028:258, 032:228, 042:248, 06J:248, 091:322, 174:248.

021:270 Public Libraries
Historical development of public libraries; current issues in public library management and policy making, including intellectual freedom; readers advisory service and genres of popular materials for adults. Prerequisite: 021:101.

021:271 College and University Libraries
Objectives, organization, unique functions and services of academic libraries; educational environment in which academic libraries function; examination of issues and problems affecting academic libraries. Prerequisite: 021:101.

021:272 Special Libraries
Management, organizational structures, collections, client services in special libraries; site visits to a variety of special libraries, information centers; projects that apply theoretical principles.

021:275 Health Informatics I
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 050:283, 051:187, 056:186, 074:191, 096:283, 174:226, 200:110.

021:278 Information Policy
Development of policy based on ethical and legal issues in library and information professions; intellectual freedom, intellectual property, privacy, equity.

021:279 Topics: Policy/Planning
Current topics in national and international policies, their impact on planning. Repeatable. Prerequisite: 021:260.

021:280 Health Informatics II
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as 051:189, 056:287, 074:192, 096:289, 200:120.

021:282 Practicum in Libraries and Information Centers
Supervised field experience in selected libraries and information centers; emphasis on application of theory to practice; at least 80 hours of fieldwork. Prerequisite: consent of instructor.

021:284 School Library Media Practicum
Supervised field experience in library media centers at elementary and secondary school levels; emphasis on application of theory to practice; at least 80 hours of fieldwork. Prerequisites: 021:262 and consent of instructor.

021:289 Seminar in Library and Information Science
Contemporary issues in library and information science; student presentations, guest speakers. Prerequisite: consent of instructor.

021:290 Capstone
Opportunity for students to synthesize their learning in the program, to reflect on their professional education as they prepare for graduation, and to form goals. Prerequisite: 27 s.h. earned in library and information science.
021:292 Independent Study
Formal contract between student and faculty member. Prerequisites: formal proposal and consent of instructor.

021:299 Thesis
Molecular and Cellular Biology

**Director:** Jackie Bickenbach (Anatomy and Cell Biology)
**Affiliated faculty:** Christopher Adams (Internal Medicine), Lee-Ann Allen (Internal Medicine), Michael Apicella (Microbiology), Nikolai Artemyev (Molecular Physiology and Biophysics), Alexander Assuak (Pediatrics), Jackie Bickenbach (Anatomy and Cell Biology), Gail Bishop (Microbiology), Daniel Bonthius (Pediatrics), Kevin Campbell (Molecular Physiology and Biophysics), Michael Cohen (Pathology), John Colgan (Internal Medicine), Kris DeMal (Biochemistry), Frederick Domann (Radiation Oncology), John Donelson (Biochemistry), Martine Dunnwald (Pediatrics), Adam Dupuy (Anatomy and Cell Biology), John Engelhardt (Anatomy and Cell Biology), Sarah England (Molecular Physiology and Biophysics), Michael Feiss (Microbiology), Rory Fisher (Pharmacology), Emeesto Fuentes (Biochemistry), Monica Goldblum (Biochemistry), Pamela Geyer (Biochemistry), Paloma Giangrande (Internal Medicine), Pedro Gonzalez-Alegre (Neurology), Prabhat Goswami (Radiation Oncology), Steven Green (Biolog), Gregory Hageman (Ophthalmology and Visual Sciences), Hasem Habelhah (Pathology), Raymond Hohl (Internal Medicine), Mary Horne (Pharmacology), Jon Houtman (Microbiology), Toshiki Itoh (Pathology), Aloytis Klingshutz (Microbiology), John Koland (Pharmacology), C. Michael Knudson (Pathology), Amnon Kohen (Chemistry), Tomomi Kuhana (Pathology), Gloria Lee (Internal Medicine), Steven Lentz (Internal Medicine), Andrew Lidral (Orthodontics), Jim Jung-Ching Lin (Biology), John Logsdon (Biology), Wendy Maury (Microbiology), Anton McCaffrey (Internal Medicine), Stephen McGowan (Internal Medicine), Jeffery Meier (Internal Medicine), John Menninger (Biolog), Craig Morlta (Internal Medicine), David Motto (Internal Medicine), Scott Moyer-Roeley (Molecular Physiology and Biophysics), Jeffrey Murray (Pediatrics), William Nauseef (Internal Medicine), David Price (Biochemistry), Dawn Quelle (Pharmacology), Subramanian Ramaswamy (Biochemistry), Richard Roller (Microbiology), Peter Rubenstein (Biochemistry), Andrew Russo (Molecular Physiology and Biophysics), Thomas Rutkowski (Anatomy and Cell Biology), David Sheff (Pharmacology), Curt Sigmund (Internal Medicine), Mark Stammes (Molecular Physiology and Biophysics), Jai-Jay Stalton (Internal Medicine), C. Martin Stoltzus (Microbiology), Steven Strack (Pharmacology), Fayyaz Sutterwala (Internal Medicine), Christie Thomas (Internal Medicine), Lubomir Turek (Pathology), Lori Wallrath (Biochemistry), Todd Washington (Biochemistry), Daniel Weeks (Biochemistry), Michael Welsh (Internal Medicine), Mary Wilson (Internal Medicine), Marc Wold (Biochemistry), Charles Yeaman (Anatomy and Cell Biology), Joseph Zabner (Internal Medicine)

**Graduate Program**

The Molecular and Cellular Biology Program offers a Doctor of Philosophy in molecular and cellular biology.

**Doctor of Philosophy**

The Doctor of Philosophy in molecular and cellular biology requires a minimum of 72 s.h. of graduate credit. The program is sufficiently flexible to accommodate students with a wide range of backgrounds in the biological and physical sciences. Entering students are expected to have a solid background in science, including introductory biology and chemistry, organic chemistry, physical chemistry, calculus, genetics, and biochemistry. Students can remedy deficiencies in particular areas by taking appropriate courses during the first year of graduate study.

The curriculum consists of a sequence of required, core, and elective courses that provide didactic training in molecular and cellular biology and that ensure comprehensive exposure to concepts and experimental methodologies in the field. Students engage in laboratory research immediately upon enrollment and progress rapidly to original thesis projects that lead to a Ph.D.

Because of the diversity of biological research problems that can be pursued by employing molecular and cellular approaches, the program provides options for specialization in particular areas of interest.

The Ph.D. in molecular and cellular biology requires the following course work.

All of these, if recommended by advisor; if not, students substitute elective courses:

- 156:201 Fundamentals of Gene Expression (fall) 1 s.h.
- 156:202 Fundamentals of Protein Regulation 1 s.h.
- 156:203 Fundamentals of Dynamic Cell Processes 1 s.h.
- 156:205 Practical Bioinformatics 1 s.h.

All of these:

- 156:204 Biostatistics for Biomedical Research 1 s.h.
- Approved cross-training course(s) 3-4 s.h.
- 142:290 Seminars in Molecular and Cellular Biology (taken each semester) 1 s.h.
- 650:270 Principles of Scholarly Integrity (taken each semester) 1 s.h.
- Approved electives 6 s.h.

One or three of these (total of 3 s.h.):

- 142:210 Advance Prokaryotic Molecular Biology 3 s.h.
- Or all of these:
  - 142:215 Transcription and Multifunctional Regulation by RNA 1 s.h.
  - 142:216 Chromatin Structure and Disease 1 s.h.
  - 142:217 Cancer, Epigenetics, and Genetic Manipulations in Mice 1 s.h.

Web site: [http://molcellbio.grad.uiowa.edu](http://molcellbio.grad.uiowa.edu)
Three of these (3 s.h.):

142:220 Protein Biogenesis, Transport, and Degradation in the Secretory/Endocytic System 1 s.h.
142:221 Control of Subcellular Motility 1 s.h.
142:222 Organelle Biogenesis 1 s.h.
142:225 Growth Factor Receptor Signaling 1 s.h.
142:226 Cell Cycle Control 1 s.h.
142:227 Cellular Differentiation and Stem Cell Biology 1 s.h.

One of these:

142:280 Topics in Molecular and Cellular Biology (precomprehensive students; taken each semester) 1 s.h.
Journal club of student's choice (postcomprehensive students; taken each semester)

After successfully completing the comprehensive examination, usually at the end of the second year of graduate study, students advance to candidacy for the Ph.D. degree. They devote their time to completing thesis research and writing their Ph.D. dissertation. Upon successful completion of all requirements, including the dissertation and its oral defense, students are awarded a Ph.D. in molecular and cellular biology.

Admission

For application materials and information about graduate training in molecular and cellular biology, contact the Molecular and Cellular Biology Program or visit its web site.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Graduate students in the Molecular and Cellular Biology Program receive stipends and tuition support from institutional and extramural sources, including University of Iowa fellowships and graduate research assistantships, and training grants from the National Institutes of Health.

Facilities

Training is conducted primarily in laboratories and teaching facilities of the Carver College of Medicine Departments of Anatomy and Cell Biology, Biochemistry, Dermatology, Internal Medicine, Microbiology, Molecular Physiology and Biophysics, Neurology, Ophthalmology and Visual Sciences, Pathology, Pediatrics, Pharmacology, and Radiation Oncology; the College of Dentistry Department of Orthodontics; and in the College of Liberal Arts and Sciences Departments of Biology and Chemistry. Faculty laboratories and central research facilities available to students provide access to the most up-to-date research equipment.

Molecular and Cellular Biology Courses

142:210 Advance Prokaryotic Molecular Biology 3 s.h.

142:215 Transcription and Multifunctional Regulation by RNA 1 s.h.
Principles and techniques for investigating mechanisms of controlling eukaryotic gene expression; basic genome organization, chromatin structure, transcription, RNA processing, translation; cloning methods, use of electronic sequence databases, footprinting, chromatin immunoprecipitation, in vivo and in vitro transcription assays, DNA microarray analysis, information retrieval. Prerequisite: 156:201.

142:216 Chromatin Structure and Disease 1 s.h.
Transcriptional control by chromatin, emphasis on human disease; based on research publications. Prerequisite: 156:201.

142:217 Cancer, Epigenetics, and Genetic Manipulations in Mice 1 s.h.
Epigenetic mechanisms of transcriptional control, mouse models for understanding the molecular basis for human disease; based on research publications. Prerequisite: 156:201.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>142:220</td>
<td>Protein Biogenesis, Transport, and Degradation in the Secretory/Endocytic System</td>
<td>1 s.h.</td>
<td>Models for translocation across the ER membrane, quality control/protein folding in the ER lumen, ER associated degradation; mechanisms of vesicle biogenesis, cargo selection, vesicle fusion, regulation of Golgi and trans-Golgi Network biogenesis; protein internalization from the cell surface. Prerequisite: 099:130 or equivalent. Same as 060:216, 072:220.</td>
</tr>
<tr>
<td>142:221</td>
<td>Control of Subcellular Motility</td>
<td>1 s.h.</td>
<td>Actin filaments and microtubules in terms of their assembly dynamics and regulation; how motor proteins are controlled and adapted for movement of specific proteins and vesicles within cells; signaling through GTPases; cell motility; biogenesis, regulation of cilia and flagella. Prerequisite: 099:130 or equivalent. Same as 060:221, 072:221.</td>
</tr>
<tr>
<td>142:222</td>
<td>Organelle Biogenesis</td>
<td>1 s.h.</td>
<td>Biogenesis of mitochondria, peroxisomes, nucleus, and phagosomes; membrane trafficking; mitochondrial division, mitosis and cell division, entry into lysosomes via autophagy and endocytic pathways; host/pathogen interactions, function of macrophages and neutrophils. Prerequisite: 099:130 or equivalent. Same as 060:222, 072:222.</td>
</tr>
<tr>
<td>142:225</td>
<td>Growth Factor Receptor Signaling</td>
<td>1 s.h.</td>
<td>Basic mechanisms of growth factor receptor protein tyrosine kinase (PTK) signaling, Ras protein signaling, angiogenic growth factors and receptors. Prerequisite: 156:201 or consent of instructor. Same as 060:225, 072:225.</td>
</tr>
<tr>
<td>142:226</td>
<td>Cell Cycle Control</td>
<td>1 s.h.</td>
<td>Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Prerequisite: 156:201 or consent of instructor. Same as 060:226, 072:226.</td>
</tr>
<tr>
<td>142:227</td>
<td>Cellular Differentiation and Stem Cell Biology</td>
<td>1 s.h.</td>
<td>Cellular death and survival, mechanisms of cellular differentiation, stem cell biology, cellular transformation, epithelial/mesenchymal cell transition, tumor stem cells. Prerequisite: 156:201 or consent of instructor. Same as 060:223, 072:227.</td>
</tr>
<tr>
<td>142:280</td>
<td>Topics in Molecular and Cellular Biology</td>
<td>1 s.h.</td>
<td>Opportunity to work closely with participating faculty to gain skill in critical reading of research literature and facility in presenting the material to an audience. Repeatable. Prerequisites: advanced graduate standing and consent of instructor.</td>
</tr>
<tr>
<td>142:290</td>
<td>Seminars in Molecular and Cellular Biology</td>
<td>1 s.h.</td>
<td>Research findings in molecular biology. Repeatable. Prerequisite: molecular and cellular biology graduate standing or consent of instructor.</td>
</tr>
<tr>
<td>142:299</td>
<td>Mechanisms of Parasitism Journal Club</td>
<td>1 s.h.</td>
<td>Reviews of recent publications in molecular parasitology research and thesis research by training grant or journal club students. Same as 061:299.</td>
</tr>
<tr>
<td>142:301</td>
<td>Directed Study in Molecular and Cellular Biology</td>
<td>arr.</td>
<td>Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>142:305</td>
<td>Molecular and Cellular Biology Research</td>
<td>arr.</td>
<td>Prerequisites: molecular and cellular biology graduate standing and consent of instructor.</td>
</tr>
</tbody>
</table>
The Neuroscience Program provides an interdisciplinary and interdepartmental approach to graduate education and research training in the structure, function, and development of the nervous system and its role in cognition and behavior. Students obtain training at all levels of the nervous system, from cellular/molecular to behavioral/cognitive.

Graduate Program

The Neuroscience Program offers a Ph.D. in neuroscience.

Doctor of Philosophy

The Doctor of Philosophy in neuroscience requires a minimum of 72 s.h. of graduate credit. The program's curriculum is designed around three tracks: molecular/cellular, developmental/systems, and cognitive/behavioral. Following broad-based instruction in a core curriculum, students specialize in one of the tracks.

Within a framework of core, track-specific, and elective courses, each student pursues a program of study individually designed according to his or her undergraduate training and graduate research goals. After enrolling in the Neuroscience Program, entering students consult with the advisory committee regarding their level of preparation for the program's required courses.

The Student Advisory Committee meets with all first- and second-year graduate students once each semester, helping each student explore his or her research interests and select faculty mentors for the required laboratory rotations. Each student is expected to complete three rotations in faculty laboratories before selecting a thesis advisor. Rotations ordinarily last 12 weeks but may last from 8 to 16 weeks. Under special circumstances, two rotations may be in the same laboratory, an arrangement that permits the student to learn a variety of techniques and approaches before settling down to work on the dissertation project. Students usually choose a dissertation lab at the end of their first year.

BACKGROUND REQUIREMENTS

Students are expected to demonstrate competency, through prerequisites or course work, in each of four fields: biochemistry, general physiology, cell biology, and statistics. These requirements ordinarily should be fulfilled by the end of the first year of graduate study. Waivers of background course requirements may be requested by students who have taken equivalent courses before entering the neuroscience program.

NEUROSCIENCE CORE

The following courses form the core of the neuroscience graduate curriculum.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>071:182</td>
<td>Neurotransmitter Receptors and Ion Channels</td>
<td>3 s.h.</td>
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<tr>
<td>132:180</td>
<td>Fundamental Neurobiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>132:181</td>
<td>Neurophysiology</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>132:184</td>
<td>Developmental Neurobiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>132:234</td>
<td>Medical Neuroscience</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>132:235</td>
<td>Neurobiology of Disease</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>132:240</td>
<td>Topics in Cognitive Neuroscience (cognitive track)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>156:201</td>
<td>Fundamentals of Gene Expression (molecular track)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:202</td>
<td>Fundamentals of Protein Regulation</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:203</td>
<td>Fundamentals of Dynamic Cell Processes</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
650:270 Principles of Scholarly Integrity  
One statistics course  
1 s.h.  
3-4 s.h.

In addition, students register for the following two courses each semester.

132:265 Neuroscience Seminar  
132:305 Neuroscience Research  
0-1 s.h.  
arr.

**Electives**

Elective requirements may be met with three or more courses from a list of courses offered by the Departments of Anatomy and Cell Biology, Biology, Molecular Physiology and Biophysics, Pharmacology, Psychology, and other departments as appropriate. Students must take electives in at least two of the program's three tracks, ensuring that they receive advanced training both in their area of specialization and in related areas of neuroscience. With permission of the Student Advisory Committee, students may satisfy the elective requirement wholly or in part by registration in 132:301 Directed Study in Neuroscience.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

For information about predoctoral training opportunities in neuroscience, contact the Neuroscience Program or visit its web site.

**Financial Support**

Full-time Neuroscience Program students receive stipends and full tuition scholarships through fellowships and research assistantships. Awards are renewed annually, based on continued satisfactory progress and availability of funds. The standard stipend for graduate students is $24,250 for 2009-10.

The Neuroscience Program is committed to supporting its graduate students for their entire training period. Students normally are supported in the first year by the program. After that, support is expected to come from the student's primary research mentor. Occasionally, advanced students are supported through teaching assistantships. Tuition is paid for all students.

**NIH Training Grant**

The Neuroscience Program is supported by a training grant from the National Institutes of Health. The grant provides stipend and tuition support for a select group of first- and second-year graduate students.

**Facilities**

Training is conducted primarily in the laboratories and teaching facilities of the Carver College of Medicine graduate Departments of Anatomy and Cell Biology, Biochemistry, Molecular Physiology and Biophysics, and Pharmacology; clinical Departments of Internal Medicine, Neurology, and Psychiatry; and the College of Liberal Arts and Sciences graduate Departments of Biology, Communication Sciences and Disorders, Integrative Physiology, and Psychology. Students use faculty laboratories and central research facilities for ultrastructural analysis; histochemistry and immunocytochemistry; electrophysiology; fluorescence-activated cell sorting; cellular and subcellular biochemistry; cell, tissue, and organ culture; operant and classical conditioning; molecular biology; behavioral genetics; neural substrates of complex behavior; brain-behavior relationships in humans; neuropsychology; and functional neuroimaging (PET, fMRI).

**Neuroscience Courses**

132:161 Undergraduate Research in Neuroscience  
Experimental research under faculty supervision. Prerequisite: consent of instructor.

132:180 Fundamental Neurobiology  
4 s.h.  
Neuronal function, plasticity, and development at the molecular and cellular levels. Prerequisite: 002:145 or consent of instructor. Recommended: 002:114 and 099:110, or equivalents. Same as 002:180.
132:181 Neurophysiology
Physiological properties of nerve cells, nervous systems; axonal conduction, synaptic transmission, sensory transduction, integrative processes, higher functions. Prerequisites: 002:180, 22M:025 or equivalent, and 029:012 or 029:082; or consent of instructor. Same as 002:181.

132:184 Developmental Neurobiology
Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisite: grade of B- or higher in 002:180, or graduate standing and consent of instructor. Same as 002:184, 072:184.

132:209 Receptors and Signal Transduction
Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters of even years. Prerequisites: (for 071:209) 072:153 and 156:201, or equivalents. Prerequisites: (for 072:209) 099:130 or equivalent, and consent of course director. Prerequisites: (for 132:209) medical physiology course and consent of instructor. Same as 071:209, 072:209.

132:230 Methods in Neuroscience
2 s.h.

132:234 Medical Neuroscience
Basic principles of neurophysiology, neuroanatomy; emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord, brain. Offered spring semesters. Prerequisite: (for 132:234) consent of course director. Prerequisite: (for 060:234) M.D. or Physical Therapy and Rehabilitation Science Program enrollment or consent of course director. Same as 060:234.

132:235 Neurobiology of Disease
3 s.h.
Broad, thematic understanding of disease mechanisms in neurobiological disorders.

132:240 Topics in Cognitive Neuroscience
3 s.h.
Key topics in the neural basis of human cognition; research literature. Recommended: graduate courses in basic neuroscience, cognitive psychology. Same as 064:240.

132:241 Fundamentals of Behavioral Neuroscience
3 s.h.
Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of neuroscience, sensation, motivation, emotion. Prerequisite: consent of instructor. Same as 031:241.

132:242 Fundamentals of Learning and Behavior
3 s.h.
Concepts, methods, and findings in behavioral and cognitive neurosciences; emphasis on principles of comparative psychology, motor control, learning. Prerequisite: consent of instructor. Same as 031:242.

132:245 Applied Statistics for Cognitive Neuroscience
2 s.h.
Talks by neuroscience researchers on types of statistics they regularly use in their research.

132:250 Functional Magnetic Resonance Imaging
2-3 s.h.
Basic physics principles of functional magnetic resonance imaging and approaches to data acquisition, including BOLD imaging, arterial spin labeling, and magnetic source imaging; data analysis strategies; paradigm design and development. Same as 051:280.

132:265 Neuroscience Seminar
0-1 s.h.
Research presentations. Offered fall and spring semesters. Prerequisite: consent of instructor. Same as 002:265, 031:265, 060:265, 072:265.

132:277 Mechanisms of Pain Transmission
3 s.h.
Anatomical, physiological, and pharmacological mechanisms underlying peripheral and central neuronal processing of pain; emphasis on neuronal changes that occur during pathological conditions such as inflammation/arthrosis, peripheral neuropathy. Offered fall semesters of even years. Same as 071:277, 101:277.
132:301 Directed Study in Neuroscience
Prerequisites: neuroscience graduate standing and consent of instructor.

132:305 Neuroscience Research

132:365 Seminar: Neuropsychology and Neuroscience
Clinical neuropsychology and cognitive neuroscience: cutting-edge research from scientific journals, case presentations in clinical neuropsychology, and current research. Same as 031:365, 064:365.
Rhetorics of Inquiry (POROI)

Director: Aimee Carrillo Rowe (Rhetoric)
Graduate nondegree program: Certificate in Rhetorics of Inquiry
Web site: http://poroi.grad.uiowa.edu

The Project on Rhetorics of Inquiry (POROI) is an interdisciplinary program whose aim is to improve academic inquiry and scholarly writing in the arts, humanities, sciences, and professions, especially at the intersections between disciplines. POROI explores how scholarship and professional discourse are conducted through argument, how paradigms of knowledge are sensitive to social-political contexts, and how the presentation of scholarly and professional findings is an audience-sensitive process. The program offers classes, seminars, workshops, conferences, and a peer-reviewed online journal, Poroi: An Interdisciplinary Journal of Rhetorical Analysis and Invention.

POROI also collaborates with the Graduate College to offer a certificate for graduate students.

Certificate

The Certificate in Rhetorics of Inquiry requires completion of four POROI courses (normally a minimum of 12 s.h.). Students may pursue the certificate in conjunction with a graduate degree in any field. The interdisciplinary program helps students hone their skills for arguing in oral, written, and multimedia forms within their own disciplines, and broaden their understanding of the similarities and differences among various fields.

The certificate program's objectives are to:

- help students cultivate habits of interdisciplinary study and research through reading, writing, and conversation;
- encourage students to cross conceptual and institutional boundaries that often appear to separate the arts, humanities, and professions from each other and from the social, natural, and formal sciences;
- improve students' awareness of the rhetorical dimensions of argumentation and inquiry; and
- certify that students who have completed the program are prepared to do rhetorical and cross-disciplinary work after they graduate.

All certificate students must complete 160:200 Introduction to Rhetorics of Inquiry and three additional POROI courses of their choice. See "Courses" below.

Admission

Master's and doctoral candidates in good standing are eligible to enter the certificate program. To enroll, contact the Project on Rhetorics of Inquiry.

Rhetorics of Inquiry (POROI) Courses

POROI courses are open to certificate students and to those not enrolled in the certificate program.

160:110 Undergraduate Independent Study on Rhetoric of Inquiry

Independent study on the rhetoric of inquiry; connections between discourses that at first may not seem connected; for undergraduates.

160:130 Performing Culture, Language, and Literature

Performance of self in everyday life; performance in/of literature; performance as an aesthetic act; performance as a way to understand and represent identities, languages and cultures; students participate in performance as a mode of literary and rhetorical interpretation, cultural and political intervention, and artistic-embodied public presentation. Prerequisites: satisfactory completion of rhetoric and General Education literature requirements. Prerequisites: (for 036:130) 2.60 cumulative g.p.a., 036:001, a theory course (036:070 - 036:076), a research and criticism course (036:060 - 036:068), and a context course (036:040 - 036:042). Same as 008:160, 036:130, 048:160.

160:160 Issues in Rhetoric and Culture

Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Communication studies majors may apply this course to the following area requirement. AREA: Context. Prerequisites: (for 036:146) 2.60 cumulative g.p.a., 036:001, and completion of research and criticism and theory requirements. Same as 008:181, 010:160, 036:146, 048:160.

160:161 Rhetorical Issues in Health Care

3 s.h.
Role of rhetoric in health care practice, decisions, and ethics; rhetorical production of patient and professional selves in health care; varied practices, diverse perspectives, and situated production of medical and health care knowledge. Prerequisite: satisfactory completion of rhetoric general education requirement. Same as 010:161, 153:161.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisite(s)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>160:162</td>
<td>African American Literary/Rhetorical Criticism II</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. AREA: Literary Theory and Interdisciplinary Studies. PERIOD: 20th- and/or 21st-Century Literature. Prerequisite: 008:160 or 010:132 or 129:130. Same as 008:166, 010:133, 129:131.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160:165</td>
<td>Feminism and Philosophy</td>
<td>3 s.h.</td>
<td>Classical and contemporary Western philosophies concerning questions about the nature of justice, knowledge, value, truth, personal identity; feminist philosophers who develop them. Prerequisite: 131:010. Same as 131:155.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160:170</td>
<td>Philosophy of the Body</td>
<td>3 s.h.</td>
<td>Philosophical treatment of the body; perspectives from classical, modern, and contemporary texts from Western philosophy, and texts from feminist theory, critical race theory, cultural studies, and disability studies. Prerequisite: 131:010. Same as 131:170.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160:176</td>
<td>Modes of Translation Studies</td>
<td>3 s.h.</td>
<td>Surveys of the vast and growing number of approaches to translation studies; rhetorical, theoretical, practical, artistic, commercial, intermedial issues. Same as 048:176.</td>
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<td></td>
</tr>
<tr>
<td>160:180</td>
<td>Literature and Translation</td>
<td>3 s.h.</td>
<td>Translation in the broadest sense; originality, authority, authorship, accuracy, ownership, audience; issues problematizing differences between medium and message. Same as 041:180, 048:180.</td>
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</tr>
<tr>
<td>160:182</td>
<td>Honors Seminar on Political Theory</td>
<td>3 s.h.</td>
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</tr>
<tr>
<td>160:183</td>
<td>Invention</td>
<td>3 s.h.</td>
<td>How to get writing going, keep it going, and write in an authentic meaningful way. English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 08N:183.</td>
<td></td>
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</tr>
<tr>
<td>160:200</td>
<td>Introduction to Rhetorics of Inquiry</td>
<td>2-4 s.h.</td>
<td>How connections between discourses that don't seem connected suggest innovative arguments and ways of crossing boundaries between disciplines. Same as 036:210.</td>
<td></td>
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</tr>
<tr>
<td>160:216</td>
<td>Conflict, Negotiation, and Planning</td>
<td>3 s.h.</td>
<td>Conflict within communities, and planners' responses; networking, negotiating, mediating, coalition building, consensus building; case studies, role playing. Prerequisite: (for 102:216) 102:203 or consent of instructor. Same as 102:216.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160:230</td>
<td>Analysis of Scholarly Domains</td>
<td>3 s.h.</td>
<td>Information transfer in academic disciplines; scientific method, other means of knowledge construction, resulting literatures; reference tools used to control literature for a variety of audiences; emphasis on humanities, social sciences, or sciences. Prerequisite: (for 021:254) 021:141. Same as 021:254.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160:239</td>
<td>Topics</td>
<td>3 s.h.</td>
<td>Topics vary.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160:250</td>
<td>Introduction to Rhetoric of Science</td>
<td>3 s.h.</td>
<td>How science is related to social and political practices, examined by placing philosophical and pedagogical controversies about scientific method into their historical and rhetorical contexts. Same as 036:250.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
160:258 Feminist Critical Theory
Questions of difference, the body, agency, identity politics, gender performativity, power as both productive and oppressive; perspectives from texts in poststructuralist and feminist philosophy. Same as 131:258.

160:262 Readings in Nonfiction
Same as 08N:262.

160:265 Feminist Ethics in the Contemporary World
The branch of philosophy known as ethics; theory and application, including classical, contemporary, and feminist approaches and responses to ethical theory. Same as 131:255.

160:280 Postcolonial Feminist Theory
Role of colonial histories and postcolonial legacies on past and contemporary relations of power in varied geographical contexts, through interdisciplinary feminist perspective; processes of gender and racialization relative to uneven global flows of media, capital, people. Prerequisite: 131:151 or cultural studies course. Same as 010:264, 131:264.

160:300 Writing for Learned Journals
Help for graduate students in bringing written work to publishable form; analysis of target journals' audiences and interests; submission, response to criticism. Same as 08N:340, 650:300.

160:302 Writing Political Science
Practice in planning and completing political inquiries; emphasis on writing for scholarly publication. Prerequisite: political science Ph.D. enrollment or consent of instructor.

160:311 Modern Rhetoric
History of modernist rhetorical theory in the 20th century; relationships with philosophy, social and physical sciences, cultural change. Same as 008:268, 036:311.

160:313 Digital Rhetoric
Current discourse (utopic, dystopic, other strands) about the Internet as it shapes and is shaped by competing forces. Repeatable. Same as 008:313, 650:313.

160:320 Uncreative Writing
Forgery, frauds, hoaxes, avatars, and impersonations across writing and the arts; how modernist notions of chance, procedure, and repetition, and aesthetics of boredom influence current writing and art practices; experience using strategies of appropriation, replication, plagiarism, piracy, sampling, and plundering as compositional methods for writing. Repeatable. Same as 08N:320.

160:331 Studies in Language Theory
Semiotics, speech acts, philosophy of language; emphasis on their relationship to rhetoric. Same as 036:331.

160:335 Proseminar: Contemporary Rhetorical Studies
Problems in contemporary rhetorical studies; may include works of Kenneth Burke, Wayne Booth, deconstructionists, feminist theorists and critics, critics of communication technologies. Same as 036:335.

160:338 Colloquium in Political Theory
Ethical, social, or cultural issues; rhetoric's role in their contemporary significance; traditional aspects of rhetoric, their pertinence to present concerns. Same as 008:315, 010:340, 036:317.
160:353 Seminar: Intellectual Property
Areas of cultural production that have been affected by intellectual property law; notions of authorship and ownership that lie at the heart of intellectual property law, how they affect varied areas of cultural production. Same as 036:353.

160:360 Issues in Rhetoric and Culture
Rhetorical theory and criticism as culturally embedded practices; rhetorical production of selves and social difference; relationships between rhetoric and literature, philosophy, popular texts. Repeatable. Same as 008:263, 010:360.

160:370 Medical Writing and Publishing
Current state of medical writing; varied industries involving medical writing; styles and techniques for honing writing skills.

160:400 Writing Dissertations
Peer criticism of draft dissertation chapters and prospectuses; associated activities, such as construction of the curriculum vitae, letters of application, interview strategies, presentations at campus visits.
# Second Language Acquisition

**Directors:** Judith E. Liskin-Gasparro (Spanish and Portuguese), Roumyana Slabakova (Linguistics)  
**Affiliated faculty:** Stephen M. Alesi (Psychological and Quantitative Foundations), Jill N. Beckman (Linguistics), William D. Davies (Linguistics), Michael E. Everson (Teaching and Learning), Elena Gavruseva (Linguistics), Richard Hurtig (Communication Sciences and Disorders), Chuanren Ke (Asian and Slavic Languages and Literatures), Paula KEMPCHINSKY (Spanish and Portuguese), Judith E. Liskin-Gasparro (Spanish and Portuguese), Sue K. Otto (Spanish and Portuguese), Jason Rothman (Spanish and Portuguese), Leslie Schrier (Teaching and Learning), Kathy L. Schuh (Psychological and Quantitative Foundations), Carol Severino (Rhetoric), Helen Shen (Asian and Slavic Languages and Literatures), Roumyana Slabakova (Linguistics), Bruce H. Spencer (German), Ikuko Yuasa (Asian and Slavic Languages and Literatures)  
**Graduate degree:** Ph.D. in Second Language Acquisition  
**Web site:** [http://international.uiowa.edu/centers/flare/default.asp](http://international.uiowa.edu/centers/flare/default.asp)

Second language acquisition (SLA) is a multidisciplinary field whose goal is to understand the processes that underlie non-native language learning. The Second Language Acquisition Program draws from varied academic disciplines, among them linguistics, psychology, psycholinguistics, sociology, sociolinguistics, discourse analysis, conversation analysis, and education.

## Graduate Program

The Second Language Acquisition Program offers a Ph.D. in second language acquisition.

### Doctor of Philosophy

The Ph.D. in second language acquisition requires 72 s.h., including a maximum of 33 s.h. earned in work toward the master's degree. The program is interdisciplinary and focuses on languages other than English. Students interested in pursuing the Ph.D. must hold an M.A. in an appropriate field (e.g., linguistics, foreign language education, English as a second language), or they must have equivalent academic experience. Students begin the program in fall.

Doctoral students may specialize in one of three areas: linguistics, language program direction, or technology. They may pursue their interdisciplinary interests in courses offered by the College of Liberal Arts and Sciences Departments of Asian and Slavic Languages and Literatures, Communication Sciences and Disorders, French and Italian, German, Linguistics, Rhetoric, and Spanish and Portuguese, and the College of Education Departments of Psychological and Quantitative Foundations, and Teaching and Learning.

The program is divided into foundation courses (13 courses, or 39 s.h.); specialization courses (5 courses, or 15 s.h.), and dissertation work (18 s.h.). A course may be used to fulfill only one requirement.

### FOUNDATION COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>164:201</td>
<td>Second Language Acquisition Research and Theory I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:202</td>
<td>Second Language Acquisition Research and Theory II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:211</td>
<td>Multimedia and Second Language Acquisition</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Two of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07S:184</td>
<td>Reading in a Second Language (or 164:226, but not both)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:221</td>
<td>Topics in Second Language Acquisition: Speaking</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:223</td>
<td>Topics in Second Language Acquisition: Listening</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:225</td>
<td>Grammar in Second Language Teaching/Learning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:226</td>
<td>Reading in Non-Roman Scripts (or 07S:184, but not both)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:227</td>
<td>Topics in Second Language Acquisition: Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:229</td>
<td>Cultural Curriculum</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

To complete the foundation requirement, students select one course from each of the following eight areas, in consultation with their advisor. With the advisor's approval, students may use courses not listed here to fulfill the requirement.

### Curriculum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07E:300</td>
<td>Design and Organization of Curriculum</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:186</td>
<td>Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>07S:197</td>
<td>Principles of Course Design for Second Language Instruction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:208</td>
<td>Designing Materials for Second Language Instruction</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Quantitative Research Tools

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:220</td>
<td>Quantitative Educational Research Methodologies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:243</td>
<td>Intermediate Statistical Methods</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>07P:244</td>
<td>Correlation and Regression</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>07P:246</td>
<td>Design of Experiments</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>039:209</td>
<td>Teaching Chinese as a Foreign Language V</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Qualitative Research Tools

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:331</td>
<td>Seminar: Educational Psychology I—Current Topics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07B:373</td>
<td>Qualitative Research Design and Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07E:370</td>
<td>Introduction to Qualitative Methods in Literacy Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:205</td>
<td>Analysis of L1 and L2 Data</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Testing, Evaluation, Measurement

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:150</td>
<td>Introduction to Educational Measurement</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>07P:165</td>
<td>Introduction to Program and Project Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:255</td>
<td>Construction and Use of Evaluation Instruments</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:257</td>
<td>Educational Measurement and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:258</td>
<td>Theory and Technique in Educational Measurement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:265</td>
<td>Program Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07S:200</td>
<td>Fundamentals of Second Language Assessment</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Methodology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>035:200</td>
<td>Foreign Language Teaching Methods</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>039:202</td>
<td>Teaching Chinese as a Foreign Language I: Theories/Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>039:203</td>
<td>Teaching Chinese as a Foreign Language II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>39J:202</td>
<td>Japanese as a Foreign Language: Practical Applications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:145</td>
<td>Methods of Teaching English as a Second Language</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:222</td>
<td>Advanced Japanese Pedagogy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Phonetics, Phonology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>013:258</td>
<td>Modern German Phonetics and Phonology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:189</td>
<td>Introduction to Spanish Phonology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:209</td>
<td>Spanish Phonology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:110</td>
<td>Articulatory and Acoustic Phonetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:112</td>
<td>Phonological Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:203</td>
<td>Introduction to Phonology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:204</td>
<td>Phonological Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:214</td>
<td>Advanced Phonological Theory</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Morphology, Syntax

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>013:256</td>
<td>Modern German Syntax</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>013:257</td>
<td>Morphology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:186</td>
<td>Introduction to Spanish Syntax</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:207</td>
<td>Topics in Comparative Romance Linguistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>035:210</td>
<td>Spanish Syntax</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:111</td>
<td>Syntactic Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:201</td>
<td>Introduction to Syntax</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
103:202 Syntactic Theory  
103:212 Advanced Syntactic Theory  

**General Linguistics**

- 003:218 Psycholinguistics  
- 013:255 Semantics  
- 013:299 Special Topics in German Linguistics  
- 035:206 Spanish Language Acquisition  
- 039:202 Teaching Chinese as a Foreign Language I: Theories/Research  
- 039:144 Introduction to Chinese Linguistics  
- 103:176 Language Development  
- 103:206 First Language Acquisition  
- 103:211 Generative Second Language Acquisition  
- 103:216 Topics in Second Language Acquisition  
- 103:312 Seminar: Problems in Linguistics  
- 164:207 Sociolinguistics  
- 164:228 Special Topics in Japanese Linguistics  

**SPECIALIZATION COURSES**

Each student selects one of three specialization areas—linguistics, language program direction, or technology—and takes five courses (total of 15 s.h.) in that area.

**Linguistics Specialization**

Requirements for the linguistics specialization are as follows.

One of the following three-course sequences (Group 1 or Group 2):

**Group 1**

- 103:203 Introduction to Phonology  
- 103:204 Phonological Theory  
- 103:214 Advanced Phonological Theory  

**Group 2**

- 103:201 Introduction to Syntax  
- 103:202 Syntactic Theory  
- 103:212 Advanced Syntactic Theory  

One of these:

- 103:211 Generative Second Language Acquisition  
An alternate course on linguistic theory and second language acquisition

One of these:

- 031:122 Language Development  
- 031:218 Cognitive Development  
An alternate course on parsing/psycholinguistic mechanisms

**Language Program Direction Specialization**

Students who choose the language program direction specialization take five of the following courses (chosen from those not taken to satisfy the foundation requirements).

- 07S:180 Issues in Foreign Language Education  
- 07S:183 Second Language Classroom Learning
07S:184 Reading in a Second Language 3 s.h.
07S:197 Principles of Course Design for Second Language Instruction 3 s.h.
07S:202 Second Language Program Management 3 s.h.
07S:208 Designing Materials for Second Language Instruction 3 s.h.
164:205 Analysis of L1 and L2 Data 3 s.h.
164:221 Topics in Second Language Acquisition: Speaking 3 s.h.
164:222 Advanced Japanese Pedagogy 3 s.h.
164:223 Topics in Second Language Acquisition: Listening 3 s.h.
164:225 Grammar in Second Language Teaching/Learning 3 s.h.
164:226 Reading in Non-Roman Scripts 3 s.h.
164:227 Topics in Second Language Acquisition: Writing 3 s.h.
164:228 Special Topics in Japanese Linguistics 3 s.h.
164:229 Cultural Curriculum 3 s.h.

Some students may include an internship experience as part of the specialization.

164:230 Internship arr.

**Technology Specialization**

Requirements for the technology specialization are as follows.

A three-course sequence in psychological and quantitative foundations:

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:205</td>
<td>Design of Instruction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:275</td>
<td>Constructivism and Design of Instruction</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Both of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:208</td>
<td>Designing Educational Multimedia</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:215</td>
<td>Web-Based Learning</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Students choose their remaining specialization course work from the following (others may be approved by the student's advisor).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>021:120</td>
<td>Computing Foundations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>22C:104</td>
<td>Introduction to Informatics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>103:157</td>
<td>Linguistic Theory and Second Language Acquisition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:212</td>
<td>Practicum in CALL Software Development</td>
<td>1-4 s.h.</td>
</tr>
<tr>
<td>164:214</td>
<td>Advanced CALL Curriculum Development</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

A practicum course 3 s.h.

Either of these (if not taken for the three-course sequence in psychological and quantitative foundations, above):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:205</td>
<td>Design of Instruction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>07P:275</td>
<td>Constructivism and Design of Instruction</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

*Either of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:293</td>
<td>Individual Instruction in Psychological and Quantitative Foundations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:302</td>
<td>Special Projects in Second Language Acquisition</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
*May be taken after students have completed the core design and technology courses (07P:205 Design of Instruction or 07P:275 Constructivism and Design of Instruction, 07P:208 Designing Educational Multimedia, 07P:215 Web-Based Learning).

**THESIS**

All candidates must complete a thesis (164:303 Ph.D. Thesis), for which they may earn up to 18 s.h.

**OPTIONAL COURSE WORK**

Students may include the following optional course work in their degree programs.

- 164:300 Special Topics in Second Language Acquisition
- 164:301 Readings in Second Language Acquisition
- 164:302 Special Projects in Second Language Acquisition

**Admission**

Admission is for fall semester; students are admitted only for full-time study. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Strong applicants hold a master's degree in a related area, have a cumulative g.p.a. of at least 3.50 in master's degree work, and speak and write English and another language at a professional level. Applicants must submit a writing sample that demonstrates their ability to synthesize and analyze information using standard academic English.

**Financial Support**

Teaching assistantships are available through the Foreign Language Acquisition Research and Education Program (FLARE). Assistantships usually involve teaching elementary or intermediate language courses. FLARE also offers a limited number of research assistantships. Contact the Second Language Acquisition Program for details.

**Second Language Acquisition Courses**

- **164:081 Autonomous Language Learning**
  1-3 s.h.
  The art and science of self-directed language study in conjunction with work on a less-commonly-taught language; independent study; for experienced language learners. Prerequisite: consent of instructor. Same as 187:081.

- **164:101 Intensive Less-Commonly-Taught Languages**
  4-6 s.h.
  Intensive study in varied less-commonly-taught languages; emphasis on speaking, listening, and reading in preparation for academic study or research abroad. Prerequisite: completion of GE foreign language component. Same as 187:101.

- **164:111 Conversation in Less Commonly Taught Languages**
  arr.
  Foreign languages not commonly taught on campus; beyond elementary level; content adapted to enrolled students. Prerequisites: previous study of the language indicated for the section and consent of instructor. Same as 187:111.

- **164:140 Language Development**
  3 s.h.
  Introduction to first language acquisition, with focus on infancy through five years; sound discrimination abilities, word learning, babbling and speech production, acquisition of grammar; perspectives from psychology, audiology, linguistics, speech pathology. Prerequisites: an approved statistics course, grade of C- or higher in 031:014 or 031:016 or equivalent, and 031:010 or equivalent. Same as 031:122.

- **164:157 Linguistic Theory and Second Language Acquisition**
  3 s.h.
  Introduction of research results obtained by generative second language acquisition framework and their implications for classroom teaching methods; current views of language architecture; focus on inflectional morphology and linguistic interfaces, which have been proposed to be severe bottlenecks for acquisition; research findings on acquisition of syntax, phonology, semantics, linguistic pragmatics; pedagogical implications of these findings. Prerequisites: 103:111 and 103:112, or equivalents. Same as 103:157.
164:160 Articulatory and Acoustic Phonetics 3 s.h.
Production and transcription of sounds in human languages; physics of sound, computer analysis of speech sounds. Offered fall semesters. Same as 103:110.

164:163 Methods of Teaching English as a Second Language 3 s.h.
Observations of ESL and intensive English classes at the University; design and presentation of short lessons, text evaluation, demonstrations of innovative approaches of the last decade; materials. Offered spring semesters. Prerequisites: 103:110 and 103:141. Same as 103:145.

164:170 Issues in Foreign Language Education 3 s.h.
Theoretical perspectives of pivotal research issues at the forefront of foreign language education; systems available to foreign language professionals for disseminating research. Same as 07S:180.

164:171 Second Language Classroom Learning 3 s.h.
Synthesis of empirical findings on children's and adults' learning of a second or foreign language; emphasis on theoretical underpinnings of approaches, methods, techniques in language teaching. Same as 039:177, 07E:183, 07S:183.

164:172 Reading in a Second Language 3 s.h.
Current theory, research, practice in second language reading field; role of textual features and the reader in reading comprehension. Same as 07S:184.

164:173 Curriculum Foundations 2-3 s.h.
Elementary and secondary background developments in curriculum; definitions, historical perspective, philosophies, theories of knowledge, models, learning theories, directions of development and shaping forces; emphasis on development of a curriculum project. Same as 07E:186, 07S:186.

164:174 Principles of Course Design for Second Language Instruction 3 s.h.
Contemporary views of second language curriculum design; guidelines necessary for the creation of prototypical curriculum units to be transposed into classroom-ready forms; for individuals interested in foreign language materials development. Same as 07S:197.

164:181 Introduction to Chinese Linguistics 3 s.h.
Aspects of modern Chinese linguistics, such as Chinese phonology, syntax, pedagogical grammar, history of the language. Taught in English. Same as 039:144, 103:144.

164:186 Introduction to Spanish Syntax 3 s.h.
Basic principles of transformational syntax as applied to analysis of Spanish syntactic structure; extensive syntactic analysis. Prerequisite: 035:121 or equivalent. Same as 035:186.

164:189 Introduction to Spanish Phonology 3 s.h.
Sound patterns of Spanish; how various theoretical approaches solve basic problems in Spanish phonology; identification of linguistic universals, how they are manifested in the sound structure of Spanish. Prerequisite: 035:121 or 035:122 or equivalent. Same as 035:189.

164:201 Second Language Acquisition Research and Theory I 3 s.h.
Theories regarding success and failure in acquisition of second or subsequent languages; research, issues. Same as 009:237, 035:201, 039:200, 39J:201.

164:202 Second Language Acquisition Research and Theory II 3 s.h.
Continuation of 164:201. Prerequisite: 164:201 or consent of instructor. Same as 035:202, 039:201.

164:203 Introduction to Phonology 3 s.h.
Analysis of sound systems, focus on early generative phonological theory; extensive practice in analysis using data from a variety of languages; linguistic argumentation. Prerequisite: 103:110. Same as 103:203.

164:205 Analysis of L1 and L2 Data 3 s.h.
Issues in qualitative and quantitative analysis of first- and second-language data; data collection, analytical frameworks and approaches. Prerequisite: 164:201 or consent of instructor. Same as 039:205.
164:207 Sociolinguistics
Topics such as discourse and conversation analyses, linguistic pragmatics, linguistic variations, issues of language and gender. Prerequisite: 103:100 or equivalent. Same as 039:207.

164:211 Multimedia and Second Language Acquisition
Foreign language multimedia in the context of current second language acquisition theories and research; readings on interactivity, interface design, feedback, learner control, and acquisition of vocabulary, grammar, and culture; multimedia development project. Prerequisite: foreign language teaching methodology course or consent of instructor. Same as 009:238, 013:253, 035:212.

164:212 Practicum in CALL Software Development
Supervised experience in an applied setting involving development of computer-assisted language learning (CALL) software. Repeatable. Prerequisites: 164:211, faculty sponsor, and consent of instructor.

164:214 Advanced CALL Curriculum Development
Advanced instruction in a variety of software and hardware tools for development of multimedia computer-assisted language learning (CALL) courseware; students develop software for a General Education Program or third-year language course in collaboration with course supervisor. Prerequisite: 164:212. Same as 009:239, 013:254, 035:214.

164:221 Topics in Second Language Acquisition: Speaking
Theory, pedagogy, research, and assessment in second language speaking. Same as 009:236, 035:228.

164:222 Advanced Japanese Pedagogy

164:223 Topics in Second Language Acquisition: Listening
Theory, pedagogy, research, and assessment in second language listening. Same as 039:223.

164:225 Grammar in Second Language Teaching/Learning

164:226 Reading in Non-Roman Scripts
Theory and practice of reading in languages that use non-Roman alphabets, syllabary, logographic systems; reading in first and second language contexts; instructional and literacy development issues. Prerequisite: 07E:171 or 07P:270 or 07S:184 or equivalent. Same as 07S:207.

164:227 Topics in Second Language Acquisition: Writing
Theory, pedagogy, research, and assessment in second language writing. Taught in English. Same as 010:275, 035:227.

164:228 Special Topics in Japanese Linguistics
Topics in applied linguistics and language pedagogy related to Japanese language. Same as 39J:239.

164:229 Cultural Curriculum
Culture's role in foreign/second language teaching; definition, pedagogy, assessment, and materials that allow culture to be taught and learned. Same as 07S:209.

164:230 Internship
Prerequisite: consent of instructor.

164:240 Cognitive Development
Theoretical and empirical analyses of children's cognitive development; spatial and numerical concepts, causal reasoning, categorization, metacognition, memory. Same as 031:218.

164:241 Introduction to Syntax
Methods and argumentation for formal analysis of sentence structure through induction from language data of central concepts and relations; hypothesis testing, empirical bases of theoretical concepts. Corequisite: 103:200. Same as 103:201.
164:242 Syntactic Theory 3 s.h.
Current syntactic theory examined through analysis of data sets, readings in recent research; emphasis on argument construction, statement of formal principles. Offered spring semesters. Prerequisite: 103:201. Same as 103:202.

164:244 Phonological Theory 3 s.h.
Post-SPE phonological theory, including autosegmental phonology, feature geometry, the syllable, optimality theory. Prerequisite: 103:203. Same as 103:204.

164:245 First Language Acquisition 3 s.h.
Child language from a crosslinguistic perspective. Prerequisites: 103:110, and 103:141 or 103:201. Same as 103:206.

164:246 Generative Second Language Acquisition 3 s.h.
Overview of current second-language acquisition research in the generative linguistic framework; focus on characterizing second language learners' linguistic competence and how it is constrained by principles of universal grammar. Offered fall semesters. Prerequisites: 103:111 or 103:201, and 103:112 or 103:203. Same as 103:211.

164:247 Advanced Syntactic Theory 2-3 s.h.
Recent developments in syntax; comparison of theories, argumentation, and uses of data. Repeatable. Same as 103:212.

164:248 Advanced Phonological Theory 2-3 s.h.
Current issues. Repeatable. Prerequisite: 103:204. Same as 103:214.

164:249 Topics in Second Language Acquisition 3 s.h.
Recent developments of selected issues in second language acquisition. Repeatable. Prerequisite: 103:211 or consent of instructor. Same as 103:216.

164:260 Foreign Language Teaching Methods 3 s.h.
Readings in pedagogical theory and practice and second language acquisition; experience designing activities for teaching and assessment, with critiques based on current theories and approaches; development of reflective practices toward one's own language teaching. Same as 035:200.

164:261 Spanish Language Acquisition 3 s.h.
Theoretical linguistic approaches to monolingual, bilingual, and second language acquisition of Spanish and Portuguese. Prerequisite: 035:204 or equivalent. Same as 035:206.

164:262 Topics in Comparative Romance Linguistics 3 s.h.
Comparative study of phonology, morphology, or syntax of the main Romance languages as informed by linguistic theory; diachronic or synchronic perspective. Repeatable. Prerequisite: 035:204 or equivalent. Recommended: additional graduate course work in linguistics. Same as 035:207, 103:262, 20E:201.

164:263 Spanish Phonology 3 s.h.
Modern approaches to synchronic phonology as applied to Spanish; focus on traditional descriptive problems, recent generative analyses. Prerequisite: phonology or linguistics course. Same as 035:209.

164:264 Spanish Syntax 3 s.h.
Spanish syntactic constructions examined in framework of selected syntactic theory; emphasis on development of syntactic argumentation. Prerequisite: 035:204 or equivalent. Recommended: additional course work in syntax. Same as 035:210.

164:270 Fundamentals of Second Language Assessment 3 s.h.
How to write language tests; discussion of fundamental issues in development of new tests or selection of existing tests. Same as 07S:200.

164:271 Second Language Program Management 3 s.h.
Preparation for supervising, administering foreign language programs at all levels; for precollegiate language teachers and graduate students. Same as 07S:202.

164:272 Designing Materials for Second Language Instruction 3 s.h.
Critical perspective on creating and using media for second language learning and teaching; research on materials design, development of media. Prerequisite: 07S:183. Same as 07S:208.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>164:274</td>
<td>Teaching Chinese as a Foreign Language IV</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Overview of goals, concepts, principles, research, and issues in assessment and testing of Chinese as a foreign language. Same as 039:208.</td>
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</tr>
<tr>
<td>164:275</td>
<td>Teaching Chinese as a Foreign Language V</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>For M.A. students planning to write a thesis or project, or graduate students seeking knowledge in designing qualitative or quantitative studies; seminar on research design. Prerequisites: 07P:143, and 039:202 or equivalent. Same as 039:209.</td>
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<tr>
<td>164:276</td>
<td>Japanese as a Foreign Language: Practical Applications</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Instructional methodology, curriculum, and material design; hands-on experience. Prerequisite: 39J:122 or consent of instructor. Same as 39J:202.</td>
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</tr>
<tr>
<td>164:281</td>
<td>Teaching Chinese as a Foreign Language I: Theories/Research</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>164:282</td>
<td>Teaching Chinese as a Foreign Language II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Multiple levels of major Chinese textbooks, curricular organizational schemes, language programs, communicative language instruction; development of supplementary materials for a University of Iowa Chinese course. Same as 039:203.</td>
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</tr>
<tr>
<td>164:298</td>
<td>Semantics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Meaning in natural language, with focus on German; lexical semantics (sense relations, semantic fields, componential analysis), modality, temporal and spatial deixis, aspect. Same as 013:255.</td>
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<tr>
<td>164:299</td>
<td>Special Topics in German Linguistics</td>
<td>3 s.h.</td>
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<tr>
<td>164:300</td>
<td>Special Topics in Second Language Acquisition</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Repeatable. Prerequisite: consent of instructor.</td>
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<td></td>
<td>Repeatable. Prerequisite: consent of instructor.</td>
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<tr>
<td></td>
<td>Repeatable. Prerequisite: consent of instructor.</td>
<td></td>
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<tr>
<td>164:342</td>
<td>Seminar: Problems in Linguistics</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Intensive study of theoretical and practical problems. Same as 103:312.</td>
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</table>
The Translational Biomedicine Program prepares skilled clinicians to pursue new knowledge about health and disease through patient-based research. The program's goal is to support the medical research enterprise in its efforts to advance the prevention, treatment, and cure of disease.

Students in the program are trained to conduct rigorous, original clinical investigations using basic biological and physiological principles. They receive didactic training and engage in substantial mentored research opportunities in the areas of disease mechanisms, or etiology; new clinical insights into diagnosis or natural history of disease; objective assessment and outcome of therapeutic intervention; medical informatics; and development of new approaches to therapeutics.

Graduate Programs

The program offers a Master of Science and a Doctor of Philosophy in translational biomedicine.

Master of Science

The Master of Science in translational biomedicine requires course work and research equivalent to 54 s.h. of graduate credit. Each student's plan of study for the three-year program is based on his or her chosen discipline.

All students take background courses in epidemiology, study design, and statistics as well as advanced courses in basic sciences relevant to their individual research areas.

Students also must write a proposal for a K23 Mentored Patient-Oriented Research Career Development Award from the National Institutes of Health. For M.S. students, the K23 proposal replaces the thesis. A draft of the K23 proposal must pass an internal review by the end of the student's second year.

Students may choose to pursue research areas in any of the health sciences disciplines, and they enjoy considerable flexibility in scheduling course work and beginning research.

The following courses are required. All students must register for 050:225 Translational Biomedical Research and 173:163 Seminar in Clinical and Translational Research each semester in the program.

173:140 Epidemiology I: Principles 3 s.h.
173:150 Introduction to Clinical Epidemiology 2-3 s.h.
173:152 Clinical Research Career Development 1 s.h.
171:161 Introduction to Biostatistics 3 s.h.
173:161 Patient-Oriented Research Data Analysis 3 s.h.
173:163 Seminar in Clinical and Translational Research 1 s.h.
173:211 Grant Writing for Clinical Investigators 1 s.h.
050:225 Translational Biomedical Research arr.
173:240 Epidemiology II: Advanced Methods 4 s.h.
173:290 Intervention and Clinical Trials 3 s.h.
173:295 Clinical Research Ethics 2 s.h.
The following is a sample schedule for the Master of Science.

**First Year**

**Summer Session**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>173:140</td>
<td>Epidemiology I: Principles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>173:152</td>
<td>Clinical Research Career Development</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
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</table>

**Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>051:121</td>
<td>Introduction to Bioinformatics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>173:150</td>
<td>Introduction to Clinical Epidemiology</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>173:290</td>
<td>Intervention and Clinical Trials</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>173:163</td>
<td>Seminar in Clinical and Translational Research</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>050:225</td>
<td>Translational Biomedical Research</td>
<td>arr.</td>
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</table>

**Spring Semester**

<table>
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<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>173:161</td>
<td>Patient-Oriented Research Data Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>173:240</td>
<td>Epidemiology II: Advanced Methods</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>173:295</td>
<td>Clinical Research Ethics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>173:163</td>
<td>Seminar in Clinical and Translational Research</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>050:225</td>
<td>Translational Biomedical Research</td>
<td>arr.</td>
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</tbody>
</table>

**Second Year**

**Summer Session**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>173:211</td>
<td>Grant Writing for Clinical Investigators</td>
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**Fall Semester**

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<tr>
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<tr>
<td>Elective</td>
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<td>3 s.h.</td>
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<tr>
<td>Elective</td>
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<td>3 s.h.</td>
</tr>
<tr>
<td>173:163</td>
<td>Seminar in Clinical and Translational Research</td>
<td>1 s.h.</td>
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<tr>
<td>050:225</td>
<td>Translational Biomedical Research</td>
<td>arr.</td>
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</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>173:163</td>
<td>Seminar in Clinical and Translational Research</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>050:225</td>
<td>Translational Biomedical Research</td>
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</table>

**Third Year**

**Summer Session**

<table>
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<tr>
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<th>Course Title</th>
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<td>050:225</td>
<td>Translational Biomedical Research</td>
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**Fall Semester**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>173:163</td>
<td>Seminar in Clinical and Translational Research</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>050:225</td>
<td>Translational Biomedical Research</td>
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</tbody>
</table>
Doctor of Philosophy

The Doctor of Philosophy in translational biomedicine requires a minimum of 72 s.h. of graduate credit. Ph.D. students build on their M.S. study plan with more advanced work. For information about the Ph.D., contact the Translational Biomedicine Program.

Admission

The Translational Biomedicine Program welcomes students with diverse educational and scientific backgrounds and varied research interests. Applicants to the program should have a strong interest and background in a health science profession and knowledge of basic sciences and medicine. They should hold an advanced degree in one of the health sciences (e.g., M.D., D.O., D.D.S., D.V.M., M.S.N., Pharm.D., Ph.D.).

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission is based on applicants' undergraduate and graduate academic achievement, performance on the Graduate Record Examination (GRE) General Test, and letters of recommendation. Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL).

The program helps applicants find suitable mentors. All prospective students, and their mentors, must guarantee that once they are accepted as students in the program, they will be able to devote essentially all of their time over a three-year period to training. For instance, a fellow in the Carver College of Medicine could spend no more than two months each year working on clinical assignments (e.g., two months of inpatient assignments or one month of inpatient assignments and one-half day per week in a clinic).

Financial Support

Funding of tuition and salaries or stipends is available from a number of sources. Contact the Translational Biomedicine Program for information.

Facilities

Training is conducted mainly in the laboratories and teaching facilities of the Carver College of Medicine and the College of Public Health. The University of Iowa Institute for Clinical and Translational Science Clinical Research Unit is available for research training. The program also is linked with the Carver College of Medicine's graduate training program in clinical research.

Associated Courses

173:163 Seminar in Clinical and Translational Research 1 s.h.
050:225 Translational Biomedical Research arr.
Transportation Studies

Director: Paul F. Hanley
Affiliated faculty: Marc P. Armstrong (Geography), M. Asghar Bhatti (Civil and Environmental Engineering), John W. Fuller (Urban and Regional Planning/Economics), Paul F. Hanley (Urban and Regional Planning), Jon G. Kuhl (Electrical and Computer Engineering), Hosain David Lee (Civil and Environmental Engineering), Miwa Matsuo (Urban and Regional Planning), Wilfrid A. Nixon (Civil and Environmental Engineering), Gerard Rushton (Geography/Health Management and Policy), Thomas Schnell (Mechanical and Industrial Engineering), James W. Stoner (Civil and Environmental Engineering/Urban and Regional Planning)

Graduate nondegree program: Certificate in Transportation Studies
Web site: http://ppc.uiowa.edu

Transportation is vital to modern society. The United States, like other nations, faces many critical transportation problems and issues. The highway system is reaching an advanced stage of its life cycle, public transit operating deficits are growing, the quality of transportation available to many citizens is unacceptably low, serious inequities exist between transportation modes, and extensive changes are called for in traditional transportation institutions. New approaches to financing the nation's road system are badly needed.

Transportation engineers and planners draw on a number of skills to respond to the challenges they face. They must analyze and forecast the movement of people and goods within and between cities; identify effective and efficient means for providing desired transportation services; price these services properly; and evaluate the impact that transportation changes have on land use, environmental quality, the local or regional economy, and various subgroups within society.

No single academic discipline can supply all of the theories, principles, or methods needed to address the varied and complex problems in transportation. Recognizing this, the Department of Civil and Environmental Engineering and the Urban and Regional Planning Program participate in the interdisciplinary Transportation Studies Program, through which students in the participating units can earn the Certificate in Transportation along with their graduate degrees.

The Department of Mechanical and Industrial Engineering also participates in the transportation certificate program, offering courses in human factors and safety issues in transportation, and the Department of Geography offers courses in geographic information systems (GIS), location theory, and other related areas.

Certificate

The Certificate in Transportation Studies requires 18 s.h. of graduate credit. Students may earn the certificate in conjunction with an M.S. or Ph.D. in civil and environmental engineering, or with an M.A. or M.S. in urban and regional planning.

The Certificate in Transportation Studies is coordinated by the Public Policy Center in conjunction with the Graduate College. Completion of the certificate requirements is noted on the student's transcript. The certificate is awarded in conjunction with the established degree requirements of the individual academic units.

Students who enroll in a course of study leading to the certificate also may wish to participate in faculty-led transportation research, which may explore topics such as system planning, traffic operations and engineering, spatial data systems and analysis, simulation applications, and policy issues.

Certificate with M.S. or Ph.D. in Civil and Environmental Engineering

The Department of Civil and Environmental Engineering offers a subtrack in transportation at both the Master of Science and Doctor of Philosophy levels. The M.S. requires a minimum of 30 s.h. of graduate credit and may be earned either with or without thesis. Thesis students may count up to 6 s.h. of credit for thesis research toward the 30 s.h. required for the degree. Nonthesis students usually are required to complete a research paper based on independent study and to defend the paper in an oral examination.

Students who wish to complete the M.S. in a single academic year must complete 15 s.h. during both the fall and spring semesters.

The Ph.D. degree requires a minimum of 72 s.h. of graduate credit; up to 18 s.h. may be earned for dissertation research. A minimum of one year of campus residency is required. For detailed information on the residency requirement, see section XII.C of the Manual of Rules and Regulations of the Graduate College.

Individuals with degrees in other transportation-related disciplines are encouraged to apply to the Transportation Studies Program. Depending on a student's background, additional course work in statistics, computer programming, simulation, mathematics, and operations research may be required for the certificate. Credit earned in these courses may not be applicable to the student's degree program.

Students pursuing an M.S. or Ph.D. in civil and environmental engineering must complete 18 s.h. from the following courses in order to earn the Certificate in Transportation Studies. Not all courses are offered every semester; consult ISIS to determine when specific courses are offered.
Engineering students may apply to the certificate program through the Graduate College and the Department of Civil and Environmental Engineering.

Certificate with M.A. or M.S. in Urban and Regional Planning

The graduate Urban and Regional Planning Program offers Master of Arts and Master of Science degrees with a transportation concentration. Both degrees require 50 s.h. of graduate credit. During the first year, students complete an integrated core curriculum (21 s.h.) consisting of courses in planning economics and public finance, analytic methods, planning theory, and law. Beginning in the second semester, students take courses in an area of concentration (minimum of 9 s.h.), such as transportation, where core concepts are applied to a selected specialization. The planning curriculum is intended to provide students with the capability to examine policy in transportation, devise workable options, evaluate these optional courses of action, and work toward the implementation of policy solutions.

Electives complete the remaining credit. Students who select the thesis option may register for up to 6 s.h. of thesis credit and 8 s.h. of readings. Students may apply 3 s.h. of readings to the area of concentration requirement and substitute the thesis for the portfolio.

Students pursuing an M.A. or M.S. in urban and regional planning must complete 18 s.h. from the following courses in order to earn the Certificate in Transportation Studies. Not all courses are offered every semester; consult ISIS to determine when specific courses are offered.

Fall Semester

102:263 Application Simulation to Transportation 3 s.h.
102:265 Planning Sustainable Transportation 1-3 s.h.
102:266 Transportation and Land Use Planning 3 s.h.
102:268 Freight Transportation Planning 3 s.h.
102:269 Transportation Program Seminar 1 s.h.

Spring Semester

102:133 Transportation Economics 3 s.h.
102:195 Public Transit Operations and Planning 3 s.h.
102:260 Transportation Policy and Planning 2 s.h.
102:262 Transportation Demand Analysis 3 s.h.
102:264 Transportation Planning Process 2-3 s.h.

Urban and regional planning students may apply to the certificate program through the Graduate College and the Urban and Regional Planning Program.
Urban and Regional Planning

Chair: Charles E. Connerly
Professors: Charles E. Connerly, Peter S. Fisher, John W. Fuller, James A. Throgmorton
Associate professors: Jerry A. Anthony, Paul F. Hanley, Lucie Laurian, James W. Stoner
Assistant professors: Richard Funderburg, Miwa Matsuo
Adjunct lecturers: Leslie Beck, Josh Busard, Hilary Copeland, Bart Cramer, Karin Franklin, Rick Havel, Christina Kuecker, Ron Mirr, Jeffrey Schott, Jim Schwab, Dan Swartzendruber, David Swenson
Graduate degrees: M.A., M.S. in Urban and Regional Planning
Web site: http://www.urban.uiowa.edu

Urban and regional planning encompasses the development and implementation of public policies that improve the quality of life in cities and regions. Today's planners find themselves in demand for such diverse jobs as transport planner, zoning administrator, environmental analyst with a natural resources agency, economic development planner, regional solid waste management coordinator, state public health planner, neighborhood planner, state legislative analyst, and transportation consultant.

Graduate Programs

The Urban and Regional Planning Program offers a Master of Arts and a Master of Science in urban and regional planning. It also offers several joint degree programs with other academic units: B.S.E./M.A. or M.S. with the College of Engineering; J.D./M.A. or M.S. with the College of Law; M.H.A./M.A. or M.S. and M.S./M.A. or M.S. with the College of Public Health; and M.S.W./M.A. or M.S. with the School of Social Work. Students also may pursue the Certificate in Transportation Studies in conjunction with an M.A. or M.S. in planning. Joint programs and the certificate are described later in this section.

The Master of Arts and Master of Science are two-year degree programs fully accredited by the Planning Accreditation Board. Each is built on the premise that planners must be educated in methods of policy analysis and that there is a common body of knowledge, represented in the core curriculum, that provides a solid foundation for all specializations in the field.

A wide range of educational backgrounds provide good preparation for graduate study in urban and regional planning. Students with undergraduate majors such as geography, economics, English, political science, engineering, architecture, sociology, urban studies, and history currently study in the program. Usually up to 50 full-time and a few part-time students are enrolled. About half of them are women, and about 10 percent are international students.

The common core of courses and the design of the facilities allow students to get to know each other quickly. Students interact closely with faculty members in the classroom, in informal conversation, and while working on research projects.

Recent graduates of the program have taken positions with city, metropolitan, and regional planning agencies, state and federal government, nonprofit organizations, and private consulting firms. They work in all geographic regions of the United States and in several countries around the world.

Master of Arts, Master of Science

The Master of Arts and Master of Science require 50 s.h. of graduate credit, including 21 s.h. of core courses, 9 s.h. of courses in an area of concentration, and 20 s.h. of electives. Students may earn 2 s.h. for completion of an approved internship with a planning agency during summer or the academic year.

All students, including those in joint degree programs, must complete a minimum of 35 s.h. of planning courses (prefix 102). Students must earn a grade of B-minus or higher in all core and concentration area courses and must maintain an overall graduate g.p.a. of at least 3.00.

The curriculum is based on the philosophy that planners must develop the theoretical and analytic skills that will permit them to analyze social problems and evaluate public policies. Planners also must cultivate professional skills such as report writing, oral presentation, computer use, and team management in order to work effectively in various organizational and political environments.

CORE CURRICULUM

The core curriculum helps students develop an understanding of the institutions—social, economic, political, administrative, and legal systems—that provide the context for policy analysis and constrain public choices. It also promotes development of the ability to identify social goals and normative criteria for evaluating public policies, as well as the analytic skills to perform such investigations. In total, the core accounts for 21 s.h. (14 s.h. in the first fall semester, 3 s.h. in the spring semester, and 4 s.h. in the second year).

Courses in the first semester are drawn primarily from traditional disciplines, particularly economics and statistics, together with an introduction to theories and practice of planning and to land use planning. As students proceed
through the curriculum, increasing emphasis is placed on the development of critical judgment and insight, achieved through the application of theory and methods to realistic planning problems and case studies.

Core curriculum courses and required semester hours are noted in the following typical class schedule. Students may request a waiver of selected core courses on the basis of previous course work.

**First Semester**

- 102:200 Analytic Methods in Planning I 3 s.h.
- 102:202 Land Use Planning: Law and Practice 4 s.h.
- 102:203 History and Theories of Planning 3 s.h.
- 102:205 Economics for Policy Analysis 3 s.h.
- 102:208 Program Seminar in Planning Practice 1 s.h.

**Second Semester**

- 102:201 Analytic Methods in Planning II 3 s.h.
- Electives and area of concentration courses 9 s.h.

**Third Semester**

- 102:209 Field Problems in Planning I 1 s.h.
- Electives and area of concentration courses 9 s.h.
- Internship 2 s.h.

**Fourth Semester**

- 102:210 Field Problems in Planning II 3 s.h.
- Electives and area of concentration courses 9 s.h.

**CONCENTRATION AREA**

Beginning in the second semester of the program, students develop an area of concentration by applying the concepts and skills developed in the core to a specific field of planning. Currently, there are five concentration areas supported by faculty and course offerings in the planning program: transportation planning, housing and community development, economic development, land use and environmental planning, and geographic information systems.

Students complete at least 9 s.h. of courses in their concentration area. Courses offered by other University departments may supplement those offered by the planning program.

Students may combine two concentration areas. Examples of combined areas are environmental and economic development planning, and transportation and community development planning. Students also may design other concentration areas, subject to faculty approval. For example, students can specialize in health services planning with appropriate course work in the Department of Health Management and Policy or Occupational and Environmental Health, or in human services planning with courses in the School of Social Work.

**PORTFOLIO**

Students must complete a portfolio of papers that are approved by the final exam committee.

**Options**

**THESIS**

A thesis is not required, although students may petition to write one. Students may register for up to 6 s.h. of thesis credit. In addition, they may take up to 8 s.h. of readings to develop a thesis topic and prepare a literature review. Students may apply 3 s.h. of readings to the area of concentration requirement and substitute the thesis for the portfolio.

**INTERNSHIP**
Students are encouraged to complete an internship in a planning agency or related organization. To earn 2 s.h. of credit for the internship, students must submit a brief paper summarizing and evaluating their experience. Internships usually are paid staff positions and are completed during the summer between the first and second years or during the academic year.

**PRACTICUM**

An extended internship, consisting of at least five months of full-time employment in a planning-related organization, may qualify as a practicum. A practicum generally takes place during the summer and into the fall semester of the second year. It carries 5 s.h. of credit and substitutes for the required field problems courses, 102:209 Field Problems in Planning I and 102:210 Field Problems in Planning II, and the internship.

**INTERNATIONAL THEME**

Many of the Urban and Regional Planning Program's elective courses have an international component. Occasionally, the program offers a seminar on international planning issues and a course on comparative aspects of planning. Students also may register for summer courses in Rome, Italy, through Iowa State University's College of Design. Other study abroad options are available. Students may earn 3 s.h. of elective credit by taking a nonintroductory-level foreign language course.

**Joint Degrees and Certificate**

**Joint B.S.E./M.A. or M.S. in Urban and Regional Planning**

Students pursuing a B.S.E. in civil and environmental engineering may apply for admission to the joint B.S.E./master's degree program with urban and regional planning, beginning in their junior year. Graduates of the joint program with engineering have technical skills and an understanding of policy development and implementation, a combination of skills that prepares them for employment as public works directors, city engineers, transportation engineers, or in public utilities.

For information on B.S.E. requirements, see Bachelor of Science in Engineering (College of Engineering) in the Catalog.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. See Civil and Environmental Engineering (College of Engineering) in the Catalog.

**Joint J.D./M.A. or M.S. in Urban and Regional Planning**

The Juris Doctor/Master of Arts or Master of Science is the planning program's most popular joint degree. Its graduates typically seek employment as city managers, city attorneys, city planners, planning administrators, or positions as land use or environmental law specialists in legal firms or advocacy organizations.

The joint J.D./M.A. or M.S. requires a minimum of 113 s.h. of graduate credit, including 78 s.h. for the J.D. and 35 s.h. for the M.A. or M.S. It normally is completed in four years. Completion of both programs separately requires a total of 140 s.h. and five years.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. See College of Law in the Catalog.

**Joint M.H.A./M.A. or M.S. in Urban and Regional Planning**

Students interested in community and health planning may pursue a joint master's degree offered by the Urban and Regional Planning Program and the Department of Health Management and Policy in the College of Public Health. This three-year program requires 76 s.h. of graduate credit and leads to an M.A. or M.S. in planning and an M.H.A. (Master of Health Administration). Completing the joint program takes one year less than completion of the two programs separately. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

The health management and policy degree enables students to strengthen their credentials as health planners or expand their job options to include administrative positions in the health field as well as health planning jobs. Graduates of the joint program typically find employment in hospitals, state departments of health, and other private, nonprofit, or public health agencies. See Health Management and Policy (College of Public Health) in the Catalog.

**Joint M.S. in Occupational and Environmental Health/M.A. or M.S. in Urban and Regional Planning**

Students interested in environmental health may elect to pursue a joint master's degree offered by the Urban and Regional Planning Program and the College of Public Health. This option results in an M.A. or M.S. in planning and an M.S. in occupational and environmental health. The joint program requires 65 s.h. of credit, including 35 s.h. earned in
urban and regional planning and 30 s.h. earned in occupational and environmental health. The program can be completed in five semesters. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Graduates of the program typically find employment in the public health field, with state health and human services departments, or as health or environmental planners. See Occupational and Environmental Health (College of Public Health) in the Catalog.

**Joint M.S.W./M.A. or M.S. in Urban and Regional Planning**

For those interested in a career in social service delivery or human services planning, a joint program is offered by urban and regional planning and the School of Social Work, leading to an M.A. or M.S. in planning and an M.S.W. in social work. Up to 12 s.h. earned in one discipline can be applied to the other. It is possible to complete the program in three years, although some students may require an additional semester. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Graduates of this joint program find careers as human services planners for local planning agencies, nonprofit social service agencies, and state governments. See Social Work (College of Liberal Arts and Sciences) in the Catalog.

**M.A. or M.S. in Urban and Regional Planning/Certificate in Transportation Studies**

Urban and regional planning students who satisfactorily complete a prescribed set of transportation courses can earn the Certificate in Transportation Studies. The certificate program includes courses in urban and regional planning, engineering, and economics. Completion of the certificate is noted on the student's transcript.

The Transportation Studies Program is administered through the University's Public Policy Center. See Transportation Studies (Graduate College) in the Catalog.

**Admission**

Admission to the Urban and Regional Planning Program is open to students from any undergraduate major or concentration area.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Admission is based on Graduate Record Examination (GRE) General Test scores (verbal, quantitative, and analytical writing), letters of recommendation, previous academic performance, and a written statement of purpose. International applicants whose first language is not English are required to submit official TOEFL scores.

Applicants should submit the application form, GRE General Test scores, TOEFL score (for students whose first language is not English), recommendation letters, statement of purpose, and transcripts. For fall admission, applications should be submitted to arrive early in the year (preferably by January 15), although applications are accepted until July 15 (April 15 for international students). Applications for spring admission should be received by October 1 and no later than December 1. Fall admission is strongly preferred. Students applying for financial aid should submit their materials by January 15.

**Financial Support**

Students in the Urban and Regional Planning Program receive financial support from the program primarily in the form of teaching or research assistantships and contract or grant-funded assistantships. Assistantships typically require 10 hours of work per week under the direction of a faculty member. A few full or partial tuition scholarships also are available.

Students initiate applications for financial support, and awards are made on the basis of merit, experience, and interests. Assistantships may be renewed for a total of up to four semesters. The planning program has been successful in providing support to the majority of its students.

Students applying for financial support are encouraged to submit application materials and requests for support by January 15. Students who apply after that date are considered only as remaining funds permit. Financial support usually is not available for students beginning the program in the spring semester.

**Urban and Regional Planning Courses**

102:055 The Splendor of Cities 3 s.h.

Evolution of city structure in response to social, cultural, political, and economic forces; cities through time and across continents; varied resource materials, including video, novels, texts. Same as 033:056.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>102:100</td>
<td>Special Topics in Planning: Campus Planning</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Physical design and planning of a campus, with</td>
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<td></td>
<td>focus on the University of Iowa campus; origins</td>
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<td></td>
<td>of campus as an idea, key exemplars (e.g.,</td>
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<td></td>
<td>Universities of Virginia and Chicago), key</td>
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<td>transitions in the campus planning, especially</td>
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<td>in relation to the city; the University of Iowa</td>
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<td>campus, with attention to its neoclassical,</td>
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<td></td>
<td>Gothic, modernist, and more contemporary</td>
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<td>design features; the 2008 flood and its</td>
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<td></td>
<td>implications for UI campus planning.</td>
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<tr>
<td>102:101</td>
<td>Planning Livable Cities</td>
<td>3 s.h.</td>
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<td></td>
<td>Development of livable cities in the United</td>
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<td>States; economic, physical, environmental, and</td>
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<td>political forces that shape their growth;</td>
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<td></td>
<td>impact of planning, how it shapes the future of</td>
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<td></td>
<td>cities. Same as 044:136.</td>
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<tr>
<td>102:125</td>
<td>Environmental Impact Analysis</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Environmental impact assessment methodologies;</td>
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<td></td>
<td>emphasis on cost-benefit-risk, cost-effectiveness</td>
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<td>and incremental analysis, and overlay and</td>
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<td></td>
<td>graphic techniques; optimal resource use,</td>
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<td></td>
<td>system simulation; field trips to local</td>
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<td></td>
<td>environmental control facilities. Prerequisite:</td>
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<td></td>
<td>044:019. Same as 044:125.</td>
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<tr>
<td>102:128</td>
<td>Design Europe: Spatial Planning and Identity</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Interaction between physical/spatial design and</td>
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<td></td>
<td>construction of identity in Europe; how</td>
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<td></td>
<td>spatial planning helps construct identities at</td>
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<td></td>
<td>local, national, and continental scales; how</td>
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<td></td>
<td>diverse communities and their concepts of</td>
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<td>identity influence spatial planning; what can</td>
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<td></td>
<td>be learned for planning in the United States,</td>
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<td>especially regarding city planning and Latino</td>
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<td>in-migration.</td>
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<td>102:133</td>
<td>Transportation Economics</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Overview of transportation markets—intercity,</td>
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<td>rural, urban; transportation modes—rail,</td>
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<td>highway, air, water, pipeline, transit; issues</td>
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<td>in finance, policy, planning, management,</td>
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<td>physical distribution, and environmental,</td>
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<td></td>
<td>economic, and safety regulation. Prerequisites:</td>
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<td>06E:001 and 06E:002, or consent of instructor.</td>
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<td></td>
<td>Same as 044:133, 06E:145.</td>
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<tr>
<td>102:140</td>
<td>Planning for Sustainability</td>
<td>2-3 s.h.</td>
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<tr>
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<td>How planners are pursuing sustainable futures</td>
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<td></td>
<td>for cities and regions; green building,</td>
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<td>alternative forms of transportation, sustainable</td>
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<td>management of natural resources, renewable</td>
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<td>energy opportunities, urban form, natural</td>
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<td>hazard mitigation, waste management,</td>
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<td></td>
<td>smart growth; U.S. and international practice.</td>
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<td>102:195</td>
<td>Public Transit Operations and Planning</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Bus, light and heavy rail, and paratransit</td>
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<td>modes; transit operations, planning, modeling</td>
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<td>and optimization, transit agency economics,</td>
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<td>transit finance, and evolving transportation</td>
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<td>policy; skills essential to planners and</td>
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<td>engineers who intend to work for a either</td>
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<td>planning agency, transportation provider, or a</td>
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<td>transportation or planning consulting firm;</td>
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<td>individual and group projects involving transit</td>
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<td>operations; for undergraduate and graduate</td>
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<td></td>
<td>engineering students and graduate urban and</td>
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<tr>
<td></td>
<td>regional planning students. Same as 053:167.</td>
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<td></td>
<td>Prerequisite: consent of instructor.</td>
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<tr>
<td>102:200</td>
<td>Analytic Methods in Planning I</td>
<td>1-3 s.h.</td>
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<tr>
<td></td>
<td>Methods used in planning and policy analysis;</td>
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<tr>
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<td>emphasis on application of statistical</td>
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<td>techniques and quantitative reasoning to</td>
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<td>planning problems; use of computers and data</td>
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<td>systems in planning analysis.</td>
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<td>102:201</td>
<td>Analytic Methods in Planning II</td>
<td>2-3 s.h.</td>
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<tr>
<td></td>
<td>Integration of methods with the planning</td>
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<td>process; application of multiple regression,</td>
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<td>population estimation and projection, survey</td>
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<td>methods, time series analysis, industrial</td>
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<td>growth and change; presentation of results to</td>
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<td>decision makers and the public.</td>
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<td>102:202</td>
<td>Land Use Planning: Law and Practice</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Legal, social foundations of land use planning;</td>
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<td>comprehensive planning, zoning and subdivision</td>
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<td></td>
<td>review; legal aspects of land use, environmental</td>
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<td>planning; ordinance drafting; staff report</td>
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<td>writing; citizen participation.</td>
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<td>102:203</td>
<td>History and Theories of Planning</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>History of urban planning in America as a</td>
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<td>reflection of social and economic forces;</td>
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<td></td>
<td>alternative planning philosophies, roles, and</td>
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<tr>
<td></td>
<td>ethical choices open to planners.</td>
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<tr>
<td>102:205</td>
<td>Economics for Policy Analysis</td>
<td>1-3 s.h.</td>
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</table>
Principles of economics for planners; concepts and techniques of microeconomic analysis; income inequality; the role of government in the economy; tax and pricing policy; project evaluation; externalities.

102:208 Program Seminar in Planning Practice 1 s.h.
Planning process, roles of planners, professional ethics and standards. Repeatable.

102:209 Field Problems in Planning I 1 s.h.
Experience working on a two-semester project involving a current planning issue, usually for a client. Prerequisite: urban and regional planning graduate standing.

102:210 Field Problems in Planning II 3 s.h.
Continuation of 102:209. Prerequisites: 102:209 and urban and regional planning graduate standing.

102:211 Community Outreach Practicum 1-3 s.h.
Application of planning skills to community work by non-profit organizations in local area; urban planners contributing to their communities; community outreach. Prerequisite: consent of instructor.

102:214 Land Use Policy and Planning 1-3 s.h.
Environmental preservation, site development concepts, downtown revitalization, historic preservation, brownfields.

102:215 Advanced GIS for Planners 2-3 s.h.
Spatial matrices, routing, network flows, partitioning and clustering, facility location models; three-dimensional GIS analysis; statistical analysis in spatial context. Prerequisites: 102:201 and consent of instructor.

102:216 Conflict, Negotiation, and Planning 3 s.h.
Conflict within communities, and planners’ responses; networking, negotiating, mediating, coalition building, consensus building; case studies, role playing. Prerequisite: (for 102:216) 102:203 or consent of instructor. Same as 160:216.

102:217 Spatial Analysis in Planning 2-3 s.h.
Data bases, GIS, planning support systems; spatial model building and use of spatial statistics; applications to substantive problems in transportation, environment, housing, economic development. Prerequisite: 102:215 or consent of instructor.

102:218 GIS for Local Government 1-2 s.h.
Development, maintenance, and operation of an enterprise-wide Geographic Information System (GIS); implementation of a parcel-based data system model common to government entities; practical experience using data for land-use planning analysis. Prerequisite: consent of instructor.

102:219 Practicum 5 s.h.
Full-time internship of at least five months with a planning-related organization. Prerequisite: urban and regional planning graduate standing.

102:220 Virtual Reality and Urban Development 2-3 s.h.
Creation of terrain models from DEMs and CAD-based site plans, panoramas, incorporation of existing and proposed buildings into virtual reality models; use of VRML and presentation strategies, including digital movies.

102:221 Poverty, Planning, and Public Policy 1-3 s.h.
Who and where the poor are in the United States; consequences of poverty; competing explanations of poverty; historical survey and critique of antipoverty policies at federal, state, and city levels; role of urban development policies. Prerequisites: 102:200, 102:203, and 102:205; or consent of instructor.

102:223 Financing Local Government 3 s.h.
Financing of local government infrastructure through property taxes, bonding, impact fees, pricing, tax increment financing; institutional alternatives—downtown improvement districts, special districts, homeowners’ associations; fiscal disparities and regional finance; case studies. Prerequisite: 102:205 or consent of instructor.

102:224 Spatial Patterns, Networks, and Dynamics 3 s.h.
Basic tools for understanding if, when, and how reliability of information is affected by spatial considerations; examples
drawn from the spatial organization of businesses, communities, spatial inequalities, environmental quality, health, and
mobility; focus on visualization and applied analysis. Prerequisites: introductory statistics and geographic information
systems.

102:225 Geodatabases and GIS
Geodatabase implementation in the management of large GIS data sets. Prerequisite: 102:215 or consent of instructor.

102:227 Shaping Spaces, Making Places
Structure of cities from historical and contemporary perspectives; elements that define the built-form character of cities,
forces that shape urban spaces, techniques to transform spaces and places; presentations by urban designers;
background in architecture or urban design theory not required.

102:232 Planning and City Administration
Relationship of planners and other local government personnel; how planning fits into city management; city
management view of local political process, provision of city services, finance and budgeting, human resources,
tergovernmental relations, how meetings are run, dealing with the public.

102:233 The Land Development Process
How land is developed; analysis of site suitability, preparation of subdivision plan, site plan review, development
approval process, infrastructure and site preparation, negotiating local development politics; field trips. Prerequisite:
102:202 or consent of instructor.

102:235 Growth Management
Causes and consequences of urban sprawl, shortfalls in conventional land use planning; local and state growth
management policies, techniques of policy implementation, positive and negative impacts of such policies; Smart

102:242 Planning for Sustainable City--Regions
Understanding and improving the practice of urban environmental planning; techniques and politics of planning
drinking water supply, sewage treatment, natural areas conservation.

102:243 Healthy Cities and the Environment
Foundations of environmental planning for healthy cities and communities; how urban form, air and water quality, and
natural hazards affect environmental planning and health.

102:244 Global Perspectives on Environmental Planning
Environmental issues such as sprawl, loss of open space, metropolitan traffic congestion, inefficient resource
management, limited use of renewable energy, natural disaster mitigation and preparedness; solutions drawn from
international planning practice.

102:246 Environmental Policy
Environmental policy formation and politics; comparative international perspective on the United States' experience.
Prerequisite: consent of instructor.

102:247 Environmental Management
Environmental best management practices for sustainable management of natural resources; open space and habitat
protection, prairie and wetland restoration, water supplies management, natural hazard mitigation, farmland protection.

102:260 Transportation Policy and Planning
Institutional setting for transportation planning, evolution of domestic transportation policy, international influences,
transportation modes and markets, current sources of transportation planning information, emerging policy issues.

102:262 Transportation Demand Analysis
City planning procedures and traffic engineering techniques applied to transportation problems; trip generation,
distribution, assignment, mode choice models; travel surveys, data collection techniques; arterial flow, intersection
performance, parking; transit system analysis. Prerequisite: (for 053:262) 22S:039. Same as 053:262.

102:263 Application Simulation to Transportation
Transportation system management and traffic engineering; application of real-time simulation and visualization. Prerequisite: 053:063 or 053:163. Same as 053:263.

102:264 Transportation Planning Process 2-3 s.h.
Technical issues, political interface, citizen involvement, intermodal questions, public versus private roles; review and critique of transportation plans.

102:265 Planning Sustainable Transportation 1-3 s.h.
Theories and methods of exerting public control over passenger and freight transportation; social and environmental regulation; effects of changing finance, regulation, and pricing policies, including privatization, tolls, impact fees. Same as 044:265.

102:266 Transportation and Land Use Planning 3 s.h.
Policies and interactions between transportation and land use; location theories and practices; transportation infrastructure, land use, travel behavior modeling; current policies that influence travel behavior and urban form.

102:268 Freight Transportation Planning 3 s.h.
Freight transportation planning in the United States; surface modes, primarily trucking and rail, as well as trade-offs in bulk movements by inland waterways and pipelines; comparison with recent developments in policy, planning, and practice for surface transportation in other developed economies (e.g., Europe).

102:269 Transportation Program Seminar 1 s.h.
Transportation finance, safety and economic regulation, planning processes, management, government policy issues at federal, state, and local levels. Repeatable.

102:271 Housing Policy 3 s.h.
Recent housing policy initiatives at federal, state, and local levels.

102:273 Community Development 1-3 s.h.
Community Development Corporation involvement in housing and neighborhood revitalization; infill housing development and preservation; comprehensive community development initiatives.

102:277 Affordable Housing Finance 3 s.h.
Financing development or rehabilitation of affordable housing; low-income housing tax credits, the housing finance system and current regulatory issues, mortgage discrimination, improving financing for rental housing.

102:290 Economic Impact Assessment 2-3 s.h.
Economic impact and growth analysis, including economic base, income expenditure, input-output analysis; use of economic impact analysis in a cost-benefit context; industrial location and mobility theory with statistics applications. Prerequisite: 102:205 or consent of instructor.

102:295 Economic Development Policy 2-3 s.h.
Analysis of policies and programs at national, regional, state, and local levels that address problems of economic growth, development, decline. Prerequisite: consent of instructor.

102:297 Community Development Finance 3 s.h.
Financial statements and small business finance; local revolving loan funds for small businesses; evaluation of loan proposals; community development agency financing of commercial redevelopment; case studies of community development lending. Prerequisite: 102:205 or consent of instructor.

102:300 Special Topics in Planning 0-3 s.h.

102:301 International Seminar 1-2 s.h.

102:305 Readings arr.

102:315 Independent Study in Planning 1-6 s.h.
Research and analysis of a special planning problem; opportunity for student to apply knowledge in area of specialization.
102:325 Thesis: Urban and Regional Planning  

102:335 Internship  
Work in a planning or related agency or nonprofit organization. Prerequisite: consent of instructor.
The University of Iowa College of Law, founded in 1865, is the oldest law school in continuous operation west of the Mississippi River. More than 650 students and a full-time faculty of around 50 are engaged at the college in a cooperative study of law, legal institutions, professional ethics, the role of law in public policy matters, and the intersection of law and other disciplines.

The college's student/faculty ratio of 14.3-to-1 is one of the best in American legal education. Three members of the law faculty hold Ph.D. degrees in law-related disciplines.

Through traditional Socratic classes, research seminars, closely supervised writing exercises, ambitious professional skills training programs, and clinical experiences, the college seeks to produce public-spirited leaders who will be rigorous thinkers, trusted advisors, forceful advocates, creative policy makers, and innovative scholars.

The college conducts its programs in the Boyd Law Building, a 200,000-square-foot facility that opened in 1986. Its spacious library, three courtrooms, clinic suite, building-wide audiovisual system, and extensive computer technologies are recognized as outstanding features in an educational facility specially designed for modern legal training.

The college is home to one of the nation's premier law libraries. The Law Library has the largest collection of legal volumes and volume equivalents among all public law schools. Its staff numbers 33 full-time-equivalent library professionals and other personnel, and it provides comfortable seating for more than 700 patrons, with 441 private study carrels, each equipped with its own data port. The library boasts a fully computerized information retrieval system. The online electronic catalog provides instant information about all cataloged materials. The library also is on the University's wireless network.

The college celebrates diversity. Its faculty includes seven full-time professors from minority backgrounds, including African American, Asian American, and Hispanic American. In 1967 the college undertook one of the nation's first and most aggressive affirmative action programs aimed at attracting a more racially and ethnically diverse student body. Its success in this continuing effort has resulted in a minority student population that makes up approximately 17 percent of the law college's current student body (the state of Iowa's minority population is around 5 percent).

The college offers a challenging curriculum that is carefully balanced between substantive courses, perspective offerings, examination of ethical values and professionalism, and skills-training programs, including a highly active in-house legal clinic. Iowa's writing program—one of the strongest among law schools nationwide—is an integral part of all students' academic experience. During both semesters of their first year, students take one small-section class taught by a full-time professor.

The college also requires four additional writing units at the upper level, a requirement that must be fulfilled with at least two credits of faculty-supervised written work. The remaining two may be satisfied through a range of options, including writing for one of the school's four law journals, participating in the clinical program, completing exercises in appellate advocacy, or enrolling in specific seminars or independent writing projects.

The Writing Resource Center supplies and builds upon classroom writing instruction and assists students with a broad range of writing tasks (see "Resources"/"Writing Resource Center" later in this section). The center and the writing program as a whole exemplify the personalized attention and dedication to individual learning for which the college is renowned in legal circles.

The college is proud of its four student-run scholarly journals. The Iowa Law Review has served as a scholarly legal journal since 1915, analyzing developments in the law and recommending new paths for the law to follow. It frequently is ranked among the top 20 legal periodicals in the country, based on the frequency with which it is cited.
The Journal of Corporation Law is the nation's oldest and top-rated student-run legal periodical specializing in corporate law. It provides the legal and academic communities with high-quality articles on corporate issues and business law.

Transnational Law & Contemporary Problems addresses legal issues confronting the global community. Since it began publication in 1991, it has earned an excellent reputation based on its symposiums on issues such as world food policy and global environmental regulation.

The Journal of Gender, Race & Justice hosts a symposium at the college each year, attracting nationally renowned legal scholars and practitioners who discuss topics such as criminal justice, education, and critical race feminism. The journal publishes the papers presented at the symposium.

In keeping with its educational mission of encouraging the acquisition of broad social awareness and technical professional competence, the University of Iowa College of Law offers a strong program of study in the rapidly expanding fields of international and comparative law. It does so for three reasons: in an era of global interdependence, an effective lawyer must understand international law and foreign legal systems; as professionals and community leaders, lawyers familiar with international and comparative law are crucial to the formulation of public policy at all levels of society; and the study of international and comparative law provides an essential theoretical foundation for all lawyers by affording unique insight into the nature of law and legal process.

All College of Law students benefit from international exposure through association with students in the college's Master of Laws program in international and comparative law. LL.M. students take most of their classes with J.D. students. In addition, each year foreign-trained law professors and jurists pursue research in the Law Library; they also may audit or speak in classes.

The journal Transnational Law & Contemporary Problems offers students a law review experience dedicated to international issues, and the college fields a team every year in the Philip C. Jessup International Moot Court Competition. Students also have opportunities to get involved with two faculty-run centers, the University of Iowa Center for Human Rights and the University of Iowa Center for International Finance and Development, as well as student groups such as the International Law Society and the Iowa Campaign for Human Rights.

Over the years, the college has enjoyed great success in preparing women and men to be professional and civic leaders. In the 20th century, Iowa graduates served as U.S. senators and representatives, state governors, and presidents of the American Bar Association, of major universities, and of the country's largest corporations. Iowa also has been a leader in preparing American law teachers. The college is resolved to continue its traditional role of training future lawyers for positions of professional and community leadership in the 21st century.

Professional Programs (J.D., LL.M.)

The College of Law offers the Juris Doctor (J.D.), and the Master of Laws (LL.M.) in international and comparative law. It also collaborates with a variety of University of Iowa graduate programs to offer joint J.D./graduate degree programs. See "Joint J.D./Graduate Degrees" later in this section.

Full-Time Policy

The faculty believes that students receive a better legal education when they devote substantially all of their time to educational pursuits. For this reason, students are expected to pursue their law training full time. This policy is consistent with the accreditation standards of the American Bar Association and the Association of American Law Schools.

In extraordinary circumstances, it may be possible for students to enroll for fewer than 10 s.h. per semester. Students who believe they may be unable to attend full time should contact the dean's office before registering for classes.

Entrance Date

Approximately 195 students enroll in late August, at the beginning of the fall semester. All students attend courses full time during fall and spring semesters and may attend the summer term at any point during their academic careers. Entrants can expect to graduate no earlier than 27 months after beginning law study.

Admission to the Iowa Bar

A rule adopted by the Iowa Supreme Court requires all law students who intend to apply for admission to the Iowa Bar to register that intention with the court by November 1 of the year they begin law school. Details are available from the College of Law registrar or the clerk of the Iowa Supreme Court.

Juris Doctor

The Juris Doctor requires 84 s.h., including required and elective courses. All entering students are expected to take
all courses designated as first-year courses and may not register for different courses or fewer semester hours without permission of the associate dean. No student may be enrolled during any fall or spring semester for more than 15 s.h. applicable to the J.D., or for more than 12 s.h. during any two adjacent summer sessions.

To be eligible for the J.D., a student must:

receive course credit for 84 s.h.;

take and complete all required courses;

satisfy the writing requirements;

complete the course of study required for the degree in no fewer than 27 months after commencing law study at the College of Law or at a law school from which transfer credit has been accepted and no later than 84 months; and

achieve a cumulative g.p.a. of at least 2.10, a C average.

Receiving credit in a course is dependent upon successful completion of a final examination, or all assigned work, or both. In order to take the final examination, students must satisfy all requirements established by the instructor, including class attendance, written work, special readings, oral reports, and so forth.

First-Year Curriculum

One of the distinctive benefits of law study at Iowa is the College of Law's focus on providing students with a foundation in basic skills that will support more advanced study and professional work. The first-year curriculum emphasizes careful reading, essential writing skills, legal research, and argumentation. Students concentrate on developing analytical skills (for example, reading and understanding judicial opinions), gain a sense of the role of legal institutions in society, and focus on developing good writing and research skills.

All first-year students take 091:130 Legal Analysis Writing and Research I and 091:131 Legal Analysis Writing and Research II (LAWR), a two-semester, 4 s.h. course designed to equip them with effective skills in oral and written communication, legal research, and analysis. LAWR is staffed by full-time faculty members with expertise in teaching legal research and writing. Class size is small, with around 20 students in each section of the course.

LAWR helps students develop legal analysis skills gradually. It teaches the value of critical reading, how to analyze facts and frame legal issues, how to determine which facts are legally significant, and how to extract legal rules from judicial opinions. As the year progresses, students learn how to generate arguments and counter arguments, and how to interpret facts in order to predict the likely outcome of a client's case. They also learn varied methods of legal analysis, including precedential analysis and analysis by analogy.

The first-year program emphasizes writing in small increments, with short assignments, frequent feedback, and revisions of written assignments. Because students will eventually practice in a range of legal settings, the program exposes them to varied forms of written documents, such as memoranda, trial briefs, client letters, motions, and appellate briefs, and provides instruction in appropriate formats for the varied documents (e.g., questions presented, argument headings).

LAWR uses peer review, requiring students to assess, discuss, and critique their peers' writing assignments. This cooperative process helps students gain insight into their own legal writing abilities and learn to appreciate different approaches to the same task. It also prepares them for the experience of collaborating as practicing lawyers.

Students begin to learn about research early in the first year, completing increasingly complex research tasks as the year progresses. LAWR reinforces research techniques covered in the classroom by integrating them into written assignments. It also teaches students the fundamentals of legal research by requiring hands-on library workshops.

First-year courses are as follows. Entering first-year students are expected to take all first-year courses and may not register for different courses or fewer hours without the associate dean's permission.

<table>
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<tr>
<th>Fall Semester</th>
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<tbody>
<tr>
<td>091:102 Introduction to Law and Legal Reasoning</td>
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<tr>
<td>091:120 Contracts and Sales Transactions</td>
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<tr>
<td>091:130 Legal Analysis Writing and Research I</td>
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<td>091:132 Property</td>
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<td>091:364 Torts</td>
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<tr>
<th>Spring Semester</th>
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<tr>
<td>091:104 Civil Procedure</td>
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A mandatory curve is applied to the grade distribution in all courses.

Upperclass Curriculum

In the second and third years, students take courses in a broad array of substantive areas of the law, with focus on fact gathering, interviewing, counseling, drafting, transaction planning, negotiation, and litigation. They also concentrate course work or writing and research opportunities in particular areas of interest.

Very few common requirements exist in the second and third years. All students must take 091:232 Constitutional Law II and a course in professional ethics.

Writing Requirement

All students must earn four upper-level writing units in order to graduate. At least two of the four units must be earned under direct faculty supervision, in courses, seminars, research projects, or legal clinical work. The remaining two may be earned through a combination of courses and activities that carry writing credit, including 091:402 Moot Court Board, advanced appellate advocacy activities, and journals, including the Iowa Law Review, The Journal of Corporation Law, The Journal of Gender, Race & Justice, and Transnational Law & Contemporary Problems.

Concentrated Study Opportunities

Students may pursue their interest in a particular subject area by selecting appropriate course work and independent research projects. For example, in the intellectual property and competition law focus area, students may take several courses: 091:208 Antitrust Law (3 s.h.), 091:283 Copyrights (3 s.h.), 091:286 Introduction to Intellectual Property Law (3 s.h.), 091:324 Patent Law (2 s.h.), 091:369 Trademarks and Unfair Competition Law (2 s.h.), 091:608 Advanced Topics in Intellectual Property (arr. s.h.), 091:626 Federal Antitrust Policy (arr. s.h.), 091:604 Patent Prosecution Seminar (3 s.h.), 091:241 Corporations I (3 s.h.), 091:306 The Law of Electronic Media (2 s.h.), 091:355 Securities Regulation (arr. s.h.), 091:618 Cultural Property/Heritage (arr. s.h.), and 091:624 Cyberspace Law Seminar (arr. s.h.).

Seminars

Students should direct questions about a seminar's requirements to the College of Law registrar or the instructor before the seminar begins, because they may not be permitted to drop the class after it meets the first time.

Seminars usually offer up to 4 s.h., including up to two writing units. Seminar formats vary widely; consult the College of Law Guide to Courses and semester registration materials for details. Students are graded on the basis of a research paper, and at the instructor's discretion, for class participation and other seminar requirements.

A common seminar format consists of a class portion for 2 s.h., and a writing portion for 2 s.h. Reduction of credit for seminars requires the instructor's consent. In some seminars, the instructor may permit the student to enroll for the class portion but not the writing portion. The students' performance in the class portion is evaluated on the same basis as for other courses—by examinations, papers, class participation, or other methods at the faculty member's discretion. Students must obtain the instructor's consent before registering.

Papers produced for seminars may be eligible for entry in competitions sponsored by varied groups. Cash prizes frequently are available. Competition announcements are posted on the bulletin boards outside the college's Writing Resource Center.

Clinical Programs, Internships, Clerkships, Externships

Students who have completed the equivalent of three semesters toward the J.D. (at least 39 s.h.) are eligible to apply their theoretical knowledge to real cases and projects under the supervision of faculty members and other attorneys through participation in the College of Law's Clinical Law Programs.

Some 30 students participate each semester and summer session in the in-house programs. They may represent individual and organizational clients in a variety of areas including immigration, domestic violence, criminal defense, consumer law, disability, civil rights, employment law, and general civil practice.

Other students may enroll in externships in Iowa City and the surrounding area, where they act as staff attorneys, assisting in all phases of the legal process. Typical placements include the City Attorney's Office, the Human Rights Commission, and Student Legal Services in Iowa City; the federal public defender, Iowa Legal Aid, and Kids First in Cedar Rapids, Iowa; and HELP Legal Services and the U.S. Attorney's Office, Davenport, Iowa. A clinical semester also is available, in which students spend an entire semester in the Iowa Attorney General's Office, the U.S. Attorney's Office, the Youth Law Center, or the federal court, all in Des Moines.
Some students find placements in judicial externships, which provide opportunities to work closely with a federal district court judge or state appellate judge. Students register for 091:407 Clinical Law Program--Externship and earn 9 s.h. per semester; in some cases, they may arrange to earn 15 s.h. with an independent writing component. Under the supervision of the judge and the judge's staff, the student researches and drafts a wide variety of legal memoranda, orders, and opinions. The extern also assists in hearings and performs other duties associated with a judicial clerkship. Each judicial extern meets weekly with a faculty supervisor to discuss the externship work in chambers and takes part in biweekly classroom discussions with other externs.

Judicial externs must have strong research and writing skills and must be able to produce acceptable work under tight deadlines. Externs conduct much of their work independently. Only students who are able to meet these requirements should apply for judicial externships.

Students may earn a total of up to 15 s.h. in the Clinical Law Programs and up to 20 s.h. for clinic and non-law courses offered in other University of Iowa colleges.

The College of Law also is involved in programs that do not carry academic credit. Each summer it participates in the County Attorney Internship Program, through which students work as paid employees for county attorneys throughout the state, and in the Poverty Law Internship Program, which places students in Iowa Legal Aid offices. The college also helps place students in a variety of unpaid clerkships and internships nationwide that provide insight into the workings of the legal system.

Academic Advising

The **Associate dean for academic affairs** works with the dean on academic programs and issues of the law school.

The **Associate dean for student affairs** provides academic advice and counseling to students; advocates for student concerns; offers information and makes referrals for students with professional, personal, or family problems; facilitates operation of the student discipline system; and arranges reasonable accommodations for disabled students. The associate dean also advises law students pursuing combined degrees in University of Iowa graduate programs and serves as the liaison with those programs.

Each **faculty advisor** advises five or six students on course selection, academic matters, and when necessary, other concerns.

**Small section instructors** advise students enrolled in their small sections during students' first year of study.

Each year one or two tenured faculty members are selected by the Iowa Student Bar Association to serve as College of Law **ombudspersons**. Students who have a problem or grievance should seek an ombudsperson's help. All complaints are handled in strict confidence.

The College of Law **registrar** is in charge of student record keeping and should be students’ first recourse for information about course enrollment, scheduling, combined program status, student certification for state bar applications, and progress toward graduation.

The **Student Services Committee** oversees coordination and periodic review of how the college provides academic and curricular counseling to law students. The committee reviews and coordinates the college's efforts to provide information, offer services and programs, and make referrals regarding its students' mental and emotional health. The committee has oversight for assignment of faculty academic advisors to law students, for matters of faculty/student collegiality, and for the Academic Achievement Program.

**Academic Achievement Program**

The College of Law Academic Achievement Program (AAP) helps students achieve their potential as they go from successful undergraduate careers to the unique challenges of law study. Although AAP focuses on helping first-year students, its programs are open to all.

AAP presents a variety of programs, including a fall-semester lecture series for new students. Examples of content areas include time management for law study, developing effective study groups, outlining and organizing class notes and course materials, taking essay exams, and answering multiple choice tests. Several weeks before exams, a voluntary practice exam is administered. AAP also provides a number of social gatherings for all students.

Spring semester programming responds to special challenges of the second semester, including reviewing and learning from fall exams, taking on complex writing projects, exam preparation, and other matters.

In addition to offering group programs, AAP provides individual help with study skills. When personal issues affect a student's concentration or studying, the program provides direct help and refers students to University and community support resources.

**Joint J.D./Graduate Degrees**
The college has developed joint degree programs with a number of University graduate programs through the Graduate College, under which students pursue degrees simultaneously in both colleges.

Joint degree candidates may count up to 12 s.h. earned for the graduate degree toward the 84 s.h. required for the J.D., providing the courses are relevant to both degrees and the 12 s.h. are earned after admission to the combined degree program and after matriculation at the College of Law.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. Applicants to graduate programs must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or Graduate College section of the Catalog.

Graduate departments establish their own requirements for the joint degree program, including the number of semester hours taken for the J.D. that may be counted toward the graduate degree.

The College of Law offers joint graduate programs with several colleges, departments, and schools. Among them are the Tippie College of Business and its Departments of Accounting and Management and Organizations; the Schools of Journalism and Mass Communication and Social Work; and the Departments of American Studies, Anthropology, Chemistry, English, History, Philosophy, Political Science, Religious Studies, Sociology, and Spanish and Portuguese (College of Liberal Arts and Sciences); the Departments of Counseling, Rehabilitation, and Student Development, and Educational Policy and Leadership Studies (College of Education); the School of Library and Information Science and the Department of Urban and Regional Planning (Graduate College); the Carver College of Medicine; and the College of Public Health and its Department of Health Management and Policy.

Many departments have advisors for their joint programs. For more information, consult the associate dean of the College of Law and the individual academic units.

**Master of Laws in International and Comparative Law**

The Master of Laws (LL.M.) in international and comparative law is an important component of the College of Law's international approach to legal education. The program is designed for graduates of J.D. programs in the United States who wish to deepen their understanding of international and comparative law, including the law pertaining to international business transactions, and for foreign-trained jurists who wish to receive advanced training in these areas or a comparative orientation to and specific training in U.S. law and legal institutions.

The LL.M. program admits around 15 students per year, allowing each student to receive substantial attention from the faculty. Admission is competitive.

The LL.M. requires a minimum of 24 s.h. earned in College of Law courses that include a strong focus on international and comparative law. With their advisor's approval, LL.M. students may count up to 6 s.h. of law study abroad, or non-law graduate-level courses or externships, toward the degree.

LL.M. students take courses (except 091:504 Tutorial and 091:657 LL.M. Seminar) together with J.D. students, from the law school's rich offerings on U.S., international, and comparative law. This method of instruction ensures that the foreign-trained students have an effective comparative experience through broad contact with U.S. law students and professors, and the U.S. students benefit similarly from close contact with the foreign-trained lawyers.

LL.M. applicants who are graduates of U.S. law schools must have been granted a J.D. from a school that is a member of the Association of American Law Schools or is approved by the American Bar Association. Graduates of foreign law schools must have completed the basic course of university studies that qualifies them to sit for the bar examination (e.g., the French maîtrise, the German first state bar examination). If the home country bar exam does not require a specific degree, applicants should be experienced members of the bar or have completed at least the first university degree in law. Applicants without a degree from a four-year English-language university must score at least 580 (paper-based), 237 (computer-based), or 92 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score lower than 600 (paper-based), 250 (computer-based), or 100 (Internet-based) may be required to take English language course work upon entering the University. In place of TOEFL scores, the college accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0.

All applicants must present evidence of high academic potential, such as high class rank in their previous law studies; strong recommendations, especially from law professors who supervised their work in classes or seminars; and challenging professional work experience. The College of Law relies heavily on academic references to assess applicants' credentials. Because U.S. applicants and all others with first-language fluency in English are required to produce a substantial publishable paper in the program, these applicants must show evidence of ability to carry out complex research and writing projects.

**Cocurricular Programs**
Students may earn a maximum of 6 s.h. of the 84 s.h. required for the J.D. through participation in the college's rich cocurricular program offerings and or non-law classes.

**Client Counseling**

In the Client Counseling Program, students interview and counsel clients and witnesses. They gain experience in recognizing and resolving legal, nonlegal, and ethical issues arising in the context of those activities.

**Moot Court**

The Moot Court appellate advocacy programs familiarize students with writing appellate briefs, acquaints them with citation form, develops research skills, and strengthens persuasive ability in oral argument at the appellate court level.

Each academic year, the Moot Court office administers 091:210 Appellate Advocacy I in the fall semester, and two Moot Court competitions in the spring semester. Students who rank in the top scoring positions of Appellate Advocacy I are eligible for the advanced competitions in the spring semester. Advanced competitions include 091:404 Van Oosterhout Baskerville Moot Court Competition and 091:430 Jessup International Moot Court Competition.

The appellate advocacy program is administered by the Moot Court Board, which consists of student judges and an executive board.

**Trial Advocacy**

The Trial Advocacy Program (091:370 Trial Advocacy) is a student-run, faculty-supervised program in which students develop and refine skills used to prepare and try civil and criminal cases. The heart of the program is the 2 s.h. course in trial advocacy taught by law school faculty, federal and state judges, and experienced trial attorneys. Students are on their feet during most class sessions, practicing the arts of jury selection, opening statement, direct and cross examination, introduction of exhibits, use of expert testimony, and closing argument. The course culminates with a full-scale trial--from the filing of pretrial motions to the rendering of a jury verdict--conducted by student cocounsel before a visiting judge and a jury of laypersons.

The Stephenson Competition is named after Judge Roy L. Stephenson, a U.S. District Court and Eighth Circuit Court of Appeals judge and a 1940 graduate of the College of Law. Students who demonstrate superior ability in advocacy skills during the trial advocacy courses participate in a series of mock trials judged by local members of the bench and bar. Individuals selected from the competition represent The University of Iowa in the national trial competition.

**Journals**

**IOWA LAW REVIEW**

Since its inception in 1915, the *Iowa Law Review* has served as a scholarly legal journal, noting and analyzing developments in the law and suggesting future paths for the law to follow. Students have managed the *Review* since 1935, editing and publishing articles by professors and students. The *Review* is published five times annually and is staffed by second-year student writers and third-year editors. To learn more about the *Iowa Law Review*, visit its web site (http://lawreview.law.uiowa.edu).

**TRANSNATIONAL LAW & CONTEMPORARY PROBLEMS**

*Transnational Law & Contemporary Problems* (*TLCP*) is produced three times a year by Iowa law students. *TLCP* content includes matters that are of interest to the international and comparative law community and that are not commonly found in other journals and reviews. The journal features symposia with articles by distinguished legal scholars and practitioners; living history interviews with people of international accomplishment; and articles reviewing foreign legislative developments, treaties, conventions, and other international agreements. The journal also publishes articles written by Iowa law students and sponsors an internationally-advertised student writing competition each year. The journal annually organizes and sponsors a symposium on a contemporary international issue. Past conference symposia topics include climate change, international subprime mortgage crisis and war crimes.

Law students who have completed at least two semesters may earn up to 2 s.h. of credit by writing for *TLCP*. Highly qualified students who complete the writing and secondary hour requirements may be chosen to fill an editorial position, for which they earn additional credit. They also may be eligible for a monetary stipend. To learn more about *Tran* *Transnational Law & Contemporary Problems*, visit its web site (http://www.uiowa.edu/~tlcp/index.html).

**THE JOURNAL OF CORPORATION LAW**

*The Journal of Corporation Law* is the nation's oldest and most cited student-published legal periodical specializing in corporate law. The journal's scope includes antitrust, intellectual property, labor law, securities, taxation, employment discrimination, insurance, products liability, and regulated industries, as well as traditional corporate topics. Selected articles submitted from practitioners and academics are published in each of four annual issues. Several student articles also are selected for publication.
All students who have completed two semesters of class work are eligible to write for the journal. Students who have achieved third-year status at the College of Law are eligible for selection to the journal's editorial board and may receive additional academic credit. They also may be eligible for a monetary stipend. To learn more about *The Journal of Corporation Law*, visit its web site (http://www.law.uiowa.edu/journals-orgs/jcl.php).

**THE JOURNAL OF GENDER, RACE & JUSTICE**

*The Journal of Gender, Race & Justice* pushes at the boundaries of traditional legal scholarship and theory in its focus on social justice issues. Each spring the journal hosts a live symposium, bringing nationally renowned legal scholars and practitioners to the college to discuss topics such as race, gender, economic class, ability, and identity. The journal publishes the papers presented at the symposium. Each issue also includes articles written by Iowa law students.

All students completing two semesters are eligible to write for the journal. Students who have third-year standing at the College of Law are eligible for a position on the editorial board. To learn more about *The Journal of Gender, Race & Justice*, visit its web site (http://www.law.uiowa.edu/journals/grj).

**Study Abroad**

A consortium of six American law schools, coordinated through The University of Iowa College of Law, offers an annual study abroad program in which students attend a spring semester at Florida State University's London study center. There they study American and English law with faculty from the American schools and the University of London. Students participating in the program register for 660:824 London Law Consortium.

The College of Law also offers up to 8 s.h. of credit for intensive course work at Arcachon, France, in conjunction with the University of Bordeaux. Courses are offered for four weeks in May and June and are taught in English by professors from Iowa and Bordeaux. Application deadline is February 1. Students participating in the program register for 660:823 Program in Comparative Law in Bordeaux, France.

Two Iowa law students may attend the Bucerius Law School in Hamburg, Germany, each fall semester in an exchange program with that school. Students earn 12-15 s.h. of credit through course work taught in English.

Two students may attend the Universidade Católica Portuguesa School of Law (Lisbon Campus) each fall semester in an exchange program. Students earn 12-15 s.h. of credit through courses taught in English.

**Academic Recognition**

**Order of the Coif**

The Order of the Coif, a national legal honor society, has a chapter at The University of Iowa. The order is dedicated to scholarship and advancement of high ethical standards in the legal profession. Membership is drawn from the top 10 percent of the graduating class. Initiates are selected by the faculty after graduation.

**Prizes and Awards**

**Hancher-Finkbine Medallions** are awarded each year by the University to outstanding graduates; honorees are chosen from nominations made by University departments and colleges based on learning, leadership, and loyalty.

The **Philip G. Hubbard Human Rights Award** is presented each year by the University to recognize outstanding contributions to human rights and equal opportunity, as described in the University's Human Rights Policy.

The **Sandy Boyd Prize** is presented to the student who has demonstrated outstanding ability and creativity in the development of written legal scholarship.

The **Alan I. Widiss Faculty Scholar Award** is presented to the student who has made an especially outstanding and distinctive contribution to the development of written legal scholarship.

The **Randy J. Holland Award for Corporate Scholarships** is presented to the student who has written an outstanding scholarly paper in the area of corporate law.

The **Robert S. Hunt Legal History Award** is presented to a student who has written an outstanding scholarly paper in the field of legal history.

The **Donald P. Lay Faculty Recognition Award** is presented to the student who has made distinctive contributions to the College of Law's cocurricular, community, or education programs.

The **Iowa State Bar Association Prize** is presented to the student who possesses the attitude, ability, and other qualities that indicate success as a future leader of the bar association.

The **Antonia "D.J." Miller Award for Advancement of Human Rights** recognizes outstanding contributions by a student to the advancement of human rights in the law school community.
The **Dean's Achievement Award** is presented each year to a student, who, through his or her achievements, has exemplified, promoted, or contributed to cultural, racial, or ethnic diversity in the law school.

The **National Association of Women Lawyers Award** is presented to a law student who contributes to the advancement of women in society and women in the legal profession and who also has attained high academic achievement.

The **Erich D. Mathias Award for International Social Justice** is presented to a student who has made an outstanding contribution or demonstrated commitment to attaining international social justice.

The **John F. Murray Award** recognizes the student with the highest academic standing in the graduating class.

The **ALI-ABA Scholarship and Leadership Award** is presented to a student who represents an outstanding combination of scholarship and leadership, the qualities embodied by the American Law Institute and the American Bar Association.

The **Russell Goldman Award** recognizes the student who has demonstrated the most improved academic performance after the first year.

The **Iowa College of Law Appellate Advocacy Award** is presented to a student for outstanding achievement in and service to the appellate advocacy program.

The **Iowa Academy of Trial Lawyers Award** is presented to a student for outstanding achievement in the Roy L. Stephenson Trial Advocacy Competition.

The **International Academy of Trial Lawyers Award** is presented to a student who has demonstrated distinction in trial advocacy skills.

The **Michelle R. Bennett Client Representation Award** recognizes outstanding service in the college's clinical law programs.

The **ABA/BNA Award for Excellence in the Study of Intellectual Property** is presented to a student who has demonstrated excellence in the study of intellectual property law.

The **American Bankruptcy Institute Medal for Excellence in Bankruptcy Studies** is presented to a student who has demonstrated excellence in the field of bankruptcy.

The **Joan Hueffner and Stephen Steinbrink Real Estate Law and Property Award** is presented to a student who has demonstrated excellence and promise in the field of real estate law.

The **Dillon Prize** is presented to a student who has written an outstanding essay on legal history or on the intersection of law and another discipline.

### Student Organizations

Link to the student organizations' web sites via the college's Journals & Organizations web page (http://www.law.uiowa.edu/journals-orgs/index.php).

The **Alternative Dispute Resolution Society** promotes awareness of varied alternative dispute resolution processes, including arbitration, mediation, and other forms of negotiation; explores legal and other careers in alternative dispute resolution; and equips students with the knowledge and practical skills necessary for effective participation in alternative dispute resolution.

The **American Constitution Society** (ACS) is a new nonpartisan organization whose goal is to foster discussion of important issues of law and policy.

The **Asian American Law Students Association** (AALSA) seeks to instill greater awareness among law students of the needs of the Asian American community, and to encourage a greater commitment toward meeting those needs.

The Iowa chapter of the **Black Law Students Association** (BLSA) focuses on the relationship of black attorneys to the American legal structure and works to foster an attitude of professional competence. BLSA strives to promote the needs and goals of black law students, instill a greater awareness among law students of the needs of the black community, and encourage a greater commitment toward meeting those needs. The chapter seeks involvement in the local community and in recruitment programs. Membership is open to all students who support the association's goals.

The **Christian Legal Society** maintains a Christian law fellowship at the College of Law whose mission is to enable its members to love their Lord and to love their neighbors as themselves.

The college's **Equal Justice Foundation** (EJF), a chapter of the national foundation, supports public interest law concerns, with emphasis on promoting equal access and adequate representation in the courts and other forums for citizens and citizens' groups. The UI chapter's professional activities are aligned with those of the national organization. They include work in varied legal activities statewide; College of Law activities, including coordination
with other student organizations to provide the college with a better public interest support base; promotion of public interest career opportunities; and provision of information about public interest activities and concerns. Membership is open to all College of Law students.

The **Environmental Law Society** provides an educational forum for environmental law topics. During spring semester, the organization sponsors a lecture series featuring professors and experts in environmental law. The group also provides limited legal research and counseling services for attorneys, organizations, and citizens who have questions concerning environmental law. Membership is open to all College of Law students.

The **Federalist Society** fosters critical thought and debate about the application of conservative and libertarian principles to the law. Its mission is to promote, advocate, and defend its founding principles and further their application through its activities, which are aimed at reordering the legal system's priorities to place a premium on individual liberty and the rule of law, and restoring recognition of those principles among law students, faculty members, lawyers, and judges.

The **Intellectual Property Law Society** (IPLS) promotes exploration of traditional areas of intellectual property law (patent, trademark, copyright) and related areas such as antitrust and entertainment law. The society provides a forum for faculty and student discussion of contemporary issues relating to intellectual property law and its practice; fosters interaction between law students and intellectual property law practitioners through a mentor program that pairs members with intellectual property law practitioners; and offers symposia. All members of the University community are welcome to attend a Society meeting or symposium.

The **International Law Society** aims to increase student and faculty awareness of international law and related issues. The society’s brown bag lunch lecture series and annual spring conference expose students and faculty to a wide variety of contemporary legal issues surrounding the study and practice of international law. Members also work to support the activities of the University of Iowa Center for Human Rights; promote the Iowa-Arcachon, France, summer program in comparative and international law; participate in the annual Philip C. Jessup International Moot Court Competition; and bring together faculty members and students who share an interest in international affairs.

The **Iowa Campaign for Human Rights** (ICHR) promotes human rights awareness and education at the College of Law, among University of Iowa students, and across the Iowa City community.

The **Iowa Student Bar Association** (ISBA) acts as the College of Law's student government. Governed by an executive council, the association provides a collective voice for the student body and a source of organization and funding for a variety of college activities and programs. Law students may get involved with the association by serving as class representatives or on faculty-student committees, which deal with admissions, curriculum, financial aid, placement, and so forth. The association presents speakers, sponsors events with other organizations, publishes a newsletter, and sponsors social events. Its legal guardian program assigns entering law students to upperclass students, who provide encouragement and information.

The **J. Reuben Clark Law Society** emphasizes three basic values and attitudes toward the practice of law and the place of law in modern society: public service, loyalty to the rule of the law and the Constitution of the United States, and appreciation for the religious dimension in American society and in lawyers' personal lives.

The **Latino/a Law Student Association** (LLSA) promotes viable changes within existing legal institutions in order to develop constructive legal and community programs, produce competent and effective Latino and Latina attorneys, and utilize available resources—activities necessary to safeguard and advance the rights and opportunities of oppressed peoples. To achieve these goals, LLSA recruits for the law school. LLSA's philosophy is that national unity is fundamental for the collective awareness needed to bring about progressive policies in legal education. The association welcomes all students.

**Law Students for Reproductive Justice** (LSRJ) is committed to increasing education and professional training in reproductive rights law. The society supports Iowa law student activism, advocacy, and networking in order to ensure that new lawyers can successfully defend and expand family planning rights and reproductive freedoms.

The **Middle Eastern Legal Student Association** (MELSA) aims to increase student and faculty awareness of issues pertaining to the Middle East and how they affect the legal profession.

The **Native American Law Students Association** (NALSA) promotes awareness of legal, political, cultural, and social issues that affect Native Americans, Alaskan Natives, Native Hawaiians, and other indigenous peoples. NALSA also seeks to promote the study of federal Indian law and provides a forum for the exploration of issues in tribal sovereignty, natural resources, family law, trust obligations, and cultural identity.

The **National Lawyers Guild** (NLG) is dedicated to the use of law as a means to promote progressive social change. Iowa's student chapter sponsors discussion panels on topics such as South African divestment and has cosponsored events with other student organizations. It also invites faculty members to speak in the college's student lounge on topics ranging from the political aspects of selecting Supreme Court justices to employment discrimination. Membership in the Iowa chapter is open to all College of Law students. Membership in the national organization is optional.
The Organization for Women Law Students and Staff (OWLSS) aims to address the changing needs and problems of women in the legal profession and to develop, recommend, and implement new programs, especially those that meet the needs of women at the College of Law. It also sponsors programs of interest to the general law school community. OWLSS has sponsored fall recruitment of prospective women law students, a safety-in-numbers program, brown bag lunches with guest speakers, sponsorship of members to the annual National Women and the Law Conference, a support network, a regular newsletter, and joint programs with women student groups in medicine and dentistry. Membership is open to all College of Law students, faculty members, and staff members.

The Outlaws provides a common forum for gay, lesbian, bisexual, and transgendered persons interested in the law, and promotes a climate of mutual support, protection, and professional advancement. Membership is open to all College of Law students and faculty members.

Founded in 1902, Phi Alpha Delta (PADS) is the nation's oldest and largest law fraternity. It was the first law fraternity to remove membership restrictions based on race, color, creed, national origin, and grade-point average. Iowa's Hammond Chapter was established in 1908 and became the first PADS chapter to accept students of all races and religions. It participates in fund-raisers and other service projects to benefit local and national service organizations. Membership is open to all College of Law students.

Phi Delta Phi (PHIDS) promotes the highest standards of ethics and professionalism in law schools and the legal profession. Since its establishment in 1869, the fraternity has initiated more than 200,000 members. It has more judges, American presidents, governors, senators, representatives, and cabinet members among its membership than does any other legal fraternity.

The Pro Bono Society exists to reinforce the value of public service and volunteerism in the legal profession. Membership in the Pro Bono Society is earned through objectively measured activities during the academic year. Iowa law students who complete and report 15 hours of voluntary public service in each of two consecutive semesters are considered for membership. Time donated to a charitable or public service cause, which may be law-related or not, is considered voluntary public service; the requirement is interpreted broadly, so that students may volunteer in an area of interest to them. Members receive a certificate of membership and are invited to attend the annual recognition dinner. The society is a project of the Iowa Student Bar Association.

Admission

Undergraduate Education and Law School

Applicants for admission to The University of Iowa College of Law must complete all requirements for the baccalaureate degree before beginning law school. In addition, the baccalaureate degree must be earned from an undergraduate institution that is accredited by an accrediting agency recognized by the Department of Education. This is in line with standards that are set by the College of Law's primary accrediting agency, the American Bar Association.

Fulfillment of the basic requirements does not guarantee admission. The College of Law Admissions Committee selects applicants it deems best able to help the college fulfill its primary mission of providing a high quality legal education in a diverse and stimulating environment and preparing students to serve as leaders in their professional and civic communities. Some additional consideration is given to applicants who are residents of Iowa.

The services that College of Law graduates are called upon to perform are so varied, and the possible fields of endeavor so broad and diverse, that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisors, each student should develop an undergraduate program that explores and develops that student's particular intellectual interests. Reading, writing, research, public speaking, critical thinking, and a healthy respect for the historical perspective are important academic skills for students considering law school.

Iowa strongly endorses the three basic objectives recommended by a committee of the Association of American Law Schools: education for comprehension and expression in words; education for a critical understanding of the human institutions and values with which the law deals; and education for greater power in thinking. Anyone thinking of attending law school should keep these objectives in mind while planning an undergraduate course of study.

The association's recommendations emphasize that undergraduate education of students for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice broad perspective for detailed specialization.

Selection of Applicants

The college uses multiple criteria in evaluating applicants for admission. Part of the entering class is admitted under a "presumptive admit" process, in which the faculty admissions committee admits students primarily on the strength of their numbers, namely the cumulative undergraduate grade-point average and LSAT score (see "Law School Admission Test" below). Before admission offers are made, each applicant's complete file is reviewed to ensure that the overall record suggests the applicant's suitability for admission, in keeping with the primary mission of the law school.
Although undergraduate academic record and performance on the LSAT are both important admission criteria, the college recognizes that in some circumstances they do not accurately reflect an applicant's potential to succeed in the study of law, develop skills as a leader, enrich the learning environment of his or her fellow students, and serve the public interest as a lawyer.

To evaluate applicants’ total suitability for admission, the college has developed a "numbers-plus" admissions policy, under which part of each entering class is admitted. Under the "numbers-plus" policy, undergraduate record and LSAT scores are supplemented by nonquantifiable factors that may provide insight to an applicant's overall potential for success in the study and practice of law.

For example, an applicant who can substantiate that his or her standardized test scores are not predictive of academic performance in law school may receive proportionately greater consideration from the committee for his or her grade-point average. Other factors the committee may consider include special academic or professional abilities not reflected in the grade-point average, disability or serious health factors that affected prior academic performance, extracurricular activities, exceptional school-year work commitments due to family financial circumstances, postbaccalaureate academic success (including graduate study), law-related employment experience, public service commitment, leadership in groups historically underrepresented in the legal profession, educational or socioeconomic disadvantage, native language other than English, unusual motivation or perseverance in overcoming obstacles to law study, and any other information the committee considers relevant to the applicant's potential for law study.

Candidates who wish to bring such factors to the committee's attention may do so by including addenda and other documentation with their applications.

Entrance Date

Admission is for August. Applications are accepted beginning September 1 of the year before admission, with an application deadline of March 1 in the year of admission. Because the college has a rolling admissions process, applicants are encouraged to submit their applications as early as possible.

Each application must include an application fee, which is nonrefundable. Students from disadvantaged backgrounds who cannot afford the fee should apply for a waiver. If you seek a waiver, you must submit a written request and a recent FAFSA or income tax statement along with your application.

For additional information, contact the College of Law Office of Admissions and Financial Aid, c/o College of Law, The University of Iowa, Iowa City, IA 52242-1113. Applications are available online at http://www.law.uiowa.edu/admissions.

Application Process

LSDAS Report and Transcripts

The University of Iowa College of Law participates in the Law School Data Assembly Service (LSDAS). Applicants must register for this service through the Law School Admission Council (LSAC); foreign-educated applicants are exempt from this requirement. Prospective law applicants can find the information they need to complete their application for admission to the law school in the council's free, annual publication, LSAT & LSDAS Information Book, and on LSAC’s website (http://www.lsac.org). It takes approximately three weeks from the time the College of Law requests the LSDAS report until it arrives.

Applicants whose fall course work does not appear on the Law School Data Assembly Service report should send an official transcript of that course work to the LSDAS.

Applicants are responsible for submitting an official transcript from each college or university they have attended to Law School Admission Council, Box 2000, Newtown, PA 18940-0998.

Each applicant's undergraduate institution must forward the applicant's class rank or the grade distribution for the applicant’s class to the College of Law, if such information is available. Information about class rank is helpful in the application process, but not required. Currently enrolled or former University of Iowa students need not provide this information.

Before classes begin, every applicant who accepts admission to the College of Law must file official transcripts showing conferral of degree with the University's Office of Admissions.

Letters of Recommendation

The college requires applicants to submit at least two, but not more than three, letters of recommendation. Recommendations from professors or others who can comment on the candidate's critical thinking, writing skills, and potential for success in law school are particularly welcome.

The college participates in the Letter of Recommendation Service offered by the Law School Admission Council. A letter of recommendation form can be downloaded at http://www.lsac.org. Recommenders should send letters of
recommendation with the required forms, to Law School Admission Council, P.O. Box 8508, Newtown, PA 18940-8508.

**Law School Admission Test**

Applicants for admission must take the Law School Admission Test (LSAT). The test is given several times each year and may be taken at numerous locations in the United States and abroad. Test application forms may be obtained from the Law School Admission Council.

Applicants are urged to take the test no later than the fall preceding the fall semester for which they are applying. Applicants' LSAT scores may not be available until approximately four weeks after their test date.

The February test date is the last one that the admissions committee can consider for applicants requesting admission the following fall. Scores more than five years old are not accepted.

Applicants whose first language is not English must take the Test of English as a Foreign Language (TOEFL) or the International English Testing System (IELTS) exam.

**Deferrals**

Admission is for the year of application; deferrals are granted only in extraordinary circumstances.

**Deposit upon Acceptance**

All applicants must make a nonrefundable deposit of $250 (U.S.). Fall entrants accepted before March 15 must submit the deposit by April 1; those accepted after March 15 have two weeks to submit the deposit.

Fall entrants must pay a second nonrefundable deposit of $150 (U.S.) by June 1.

For those who enroll, the deposit is credited toward tuition and fees. All accepted applicants, including recipients of scholarships, fellowships, and loans, are required to pay the deposit. Applicants who fail to make the deposit by the specified time forfeit their place in the entering class.

**Financial Support**

The College of Law administers its substantial financial aid program to advance the goals of its selective admission policy. Scholarships, fellowships, work-study funds, and loans are awarded on the basis of need or merit to provide access to legal education for the talented and diverse students admitted to the college. A number of part-time employment opportunities also are available to upper-level students.

Inquiries regarding financial aid should be directed either to the University's Office of Student Financial Aid or to the College of Law Office of Financial Aid.

All financial aid information is subject to change without notice.

**Application for Financial Aid**

Eligibility for financial aid is based on need established by completion of the Free Application for Federal Student Aid (FAFSA) and the required supporting documents. The FAFSA should be completed online at www.fafsa.ed.gov after January 1 each year and should be completed as soon as possible thereafter, since some financial aid is subject to the availability of funds.

Although financial aid awards are not made until after applicants are admitted to the College of Law, applicants should not wait for the notice of admission before filing the FAFSA. Admitted students who provide the required documents are informed of their eligibility for financial aid on the award notification letter. Students must reapply for aid every year.

Applicants are urged to investigate other sources of aid. Public libraries, private and civic organizations, and the Internet are excellent sources for information about financial aid resources.

**Scholarships, Fellowships**

**Merit-Based Support**

All students admitted to the College of Law are considered for merit-based scholarships and fellowships based on their academic achievement. A separate application is not required. Recipients are notified by letter. Awards may range from $500 to full tuition with a research assistantship component in upper-level years.

**Need-Based Scholarships**

All admitted students who file a Free Application for Federal Student Aid (FAFSA) and required supporting documents
are considered automatically for need-based scholarships. Recipients are notified by award letter. Awards may range from $500 to full tuition.

Iowa Law School Foundation Scholarships

The University of Iowa Law School Foundation Scholarships include scholarships based on need, merit, or a combination of need and merit. These scholarships are available to a limited number of students who meet the criteria established by the scholarship donors. All admitted students are considered for the merit-based scholarships, and all admitted students who file the FAFSA and required supporting documents are considered automatically for the need-based scholarships. A separate application is not required. Recipients are notified by award letter. Awards may range from $200 to full tuition.

Law Opportunity Fellowship

The College of Law is committed to affording opportunity for a legal career to persons historically underrepresented in the legal profession. The Law Opportunity Fellowship Program was established by the University to provide access to law school for students from groups and backgrounds historically underrepresented within the legal community. Among criteria considered in awarding the fellowships are educationally and/or socioeconomically disadvantaged backgrounds, leadership potential, academic merit, and importance of the fellowship award to the student's financial ability to attend law school.

The Law Opportunity Fellowship may provide up to full tuition for three years and the opportunity to hold a research assistant position for the second and third years. All admitted students who file the FAFSA and required supporting documents are considered for the Law Opportunity Fellowship. A separate application is not required. Recipients are notified by award letter.

Employment

The College of Law does not employ students during their first year of law school, due to the intensive course schedule. In no event may a full-time student work more than 20 hours per week.

Research Assistant Positions

Research assistant positions are available with many faculty members for second- and third-year students. Students classified as nonresidents who hold one-quarter-time research assistantships (10 hours per week) automatically qualify for resident tuition status during the semester(s) in which they serve as research assistants.

UI Part-Time Employment

The University offers a variety of part-time employment positions for students. Students do not need to apply for financial aid in order to work in these positions. Information about part-time employment is available from the University's Office of Student Financial Aid.

Federal Work-Study Program

The Federal Work-Study Program provides a need-based employment opportunity for a limited number of students in their second and/or third year at the law college. College Work-Study may reduce the student's William D. Ford Federal Direct Loan eligibility. Students must demonstrate financial eligibility for work-study through the FAFSA and its required documents.

Loans

All admitted students who file the FAFSA and required supporting documents are considered for the University of Iowa Law Foundation Loan, the Federal Perkins Loan, and the William D. Ford Federal Direct Loans.

Iowa Law School Foundation Loan, Federal Perkins Loan

These are low-interest loans based on exceptional financial need. Interest does not accrue and payments are not required until the student is no longer enrolled at least half-time in school.

Federal Direct Ford/Stafford Loans and Federal Graduate/Professional PLUS Loans

The Federal Direct Ford/Stafford Loans (subsidized and unsubsidized) and the Federal Graduate/Professional PLUS Loans are funded by the federal government. The three loan programs have different interest rates and interest subsidies based on eligibility as determined by the FAFSA and other required documents, and based on the annual maximum loan amounts. Interest on the Unsubsidized Direct Stafford Loan and the Graduate/Professional PLUS Loan
accrues while a student is in school, but principal and interest payments may be deferred while a student is in school. Eligibility for the Graduate/Professional PLUS Loan also includes a determination that the applicant does not have an adverse credit history.

**Academic Rules and Procedures**

**Transfer Credit**

No more than 30 s.h. may be transferred to Iowa from another law school. To qualify for transfer credit, courses must have been completed at a law school accredited by the American Bar Association. Grades received at another law school are not counted in calculating the cumulative grade-point average.

**Courses Taken Before Admission to the College of Law**

Students may not count toward the J.D. any credit they earned in courses they took before matriculating at the College of Law, with the exception of transfer students from other law schools.

**Courses Taken Outside the College of Law**

Students who take courses outside the College of Law must first obtain permission from the associate dean. If "special permission of the instructor required" is indicated on ISIS (Iowa Student Information Services web site), the student also must obtain the instructor's signature.

Students not enrolled in a joint degree program may apply toward the J.D. a maximum of 6 s.h. earned in courses outside the College of Law or through cocurricular hours. Such courses are approved only if they contribute directly to the professional competence of an attorney or broaden the student's understanding of law, the legal process, or any particular legal subject. More information about limitations on accreditation of non-College of Law courses is available from the associate dean.

**Courses Taken at Another Law School After Enrollment at Iowa**

With the permission of the dean, enrolled students may receive credit for courses taken and passed at other law schools accredited by the American Bar Association, up to a maximum of 30 s.h. Grades of C and higher are reflected on the student's transcript as credit for the designated semester hours.

**Externships**

With faculty approval, students may be able to arrange externships for academic credit with certain nonprofit organizations and government agencies. Externships are established for the summer, for a maximum of 6 s.h. of credit. Under limited circumstances, externships also may be arranged for the fall or spring semester. The "summer legal placement" externships earn three academic credits, with students spending at least 150 hours on-site.

Students who participate in externships for more than 3 s.h. must write a research paper. Externship credit counts toward the maximum allowable clinic credit.

Students have arranged recent externships with state and federal court judges, prosecutors and public defenders, the American Civil Liberties Union, migrant worker and immigrant projects, legal aid, attorneys general, the U.S. Department of Justice, the Environmental Protection Agency, New York City Legal Clinic for the Homeless, American University for Central Asia Research Center, Human Rights Watch, and others.

**Grading Policy**

The College of Law has adopted a numbering system for grading, effective for students who entered the college in May 2004 and later.

A numerical grade is assigned to each student in each course, except as otherwise provided (e.g., for courses graded pass/fail, for courses that continue the following term, for grades of incomplete). Grades are recorded in the University's permanent record.

The highest grade awarded at the College of Law is 4.3, the lowest 1.5. No academic credit is given for grades below 1.8 or for grades of "fail."

Numerical grades may be translated into a letter grade as follows.

- 4.3-4.2 = A+
- 4.1-3.9 = A
- 3.8-3.6 = A-
- 3.5-3.3 = B+
- 3.2-3.0 = B
- 2.9-2.7 = B-
- 2.6-2.4 = C
2.3-2.1 = C-
2.0-1.8 = D
1.7-1.5 = F

Professors may disenroll students for cause or reduce grades for inappropriate academic conduct, for example, plagiarism. Such measures are subject to appropriate due process.

With the dean’s permission, a student may retake a course in which he or she has received a failing grade. The second grade is recorded either as pass—a grade of 2.1 or higher—or fail and is not used in computing the student’s cumulative grade-point average. Rather, the first grade received for the course remains on the transcript and is used in computing the grade-point average.

If the course being retaken is sectioned, the dean designates the section to which the student will be assigned.

The faculty has adopted a mandatory grade curve for all courses.

Pass/Fail Grades
Credit for certain courses is offered only on a pass/fail basis. In the case of a failing academic performance in a pass/fail course, the faculty supervisor or instructor may assign a failing numerical grade, i.e., between 1.7 and 1.5. Individual faculty members may allow students to withdraw from a course rather than receive a failing grade.

Miscellaneous Grading Marks
Marks other than pass, fail, and numerical grades are as follows.

R means registered. It indicates that a student has completed the first half of a year-long program, such as a seminar or journal, for which a grade cannot be assigned until the second half of the program has been completed.

W means withdrawn. It carries no course credit and is not used in computing the cumulative grade-point average.

I means incomplete. It carries no course credit toward a degree until it is changed, nor is it used in computing the cumulative grade-point average. A mark of I may be reported only in exceptional cases and only if the unfinished part of the work is small and is unfinished for reasons acceptable to the instructor, and if the student's standing in the course is satisfactory. Students remove an incomplete by completing the unfinished work during their next period of residence.

Class Ranking
Students in the top 10 percent in each class may be informed of their exact rank; grade-point averages at the 87.5 percentile and 62.5 percentile are posted.

Students are ranked following the fall semester, spring semester, and summer session each year. Final class standing is determined each August and is available in September. It includes students who completed all graduation requirements in August, May, and the previous December. For purposes of ranking underclass students, the same system is used, based on the expected graduation date.

Release of Transcripts
A student's grades are not given to persons outside the College of Law, including prospective employers, without written permission of the student.

Class Attendance and Preparation
Students must be regular and punctual in attending classes and must be prepared to participate in class discussions. Students may be dropped from a course or failed, at the discretion of the instructor, for excessive absence or repeated lack of preparation. Students also are expected to attend special class meetings and be punctual in submitting course assignments, memos, and papers.

Examination Policy
One examination is given in each course, with few exceptions. Before taking an exam, each student is assigned an identification number for that exam. Instructors report final exam grades by each student's number to the dean's office, where the grades are kept on file for two years. After the grades are recorded, the dean's office gives the names corresponding to the students' numbers to the instructor, who then assigns final grades for the course. This permits the instructor to award credit for class participation and ensures anonymity in exam grading. For all courses in which a final grade is based primarily on a final exam, a mandatory curve is required. Students and the Office of the Registrar receive only the final grades.

Students are offered the option of taking some exams on their personal laptops. Each course's instructor determines whether this option is available for his or her specific course.

Students who have more than one examination scheduled for the same day, two consecutive exams (i.e. Wednesday
afternoon, Thursday morning), or exams four days in a row may schedule a make-up time for one of the exams. Students who have exams three days in a row may reschedule one only with permission of the instructor.

Students are expected to take the exam on the next scheduled makeup date immediately following the regularly scheduled exam. Whenever possible, the dean sets aside one to three days as an upperclass study period between the end of regular classes and the first regularly scheduled upperclass exam.

Extra Exam Time for Students Whose First Language Is Not English

Students who are at a substantial disadvantage in taking a timed exam because their first language is not English may receive additional time to complete the exam, commensurate with the extent of their disadvantage.

Students seeking additional time must make a written request in the dean's office by the deadline announced for the semester in which the exam is to be taken. An undergraduate degree from an English-speaking college or university is considered prima facie evidence that the student is not qualified for extra time.

Exam Accommodations for Students with Disabilities

A physical or mental disability may put a law student at a substantial disadvantage in taking an examination. For purposes of the college's policy on exam accommodations for students with disabilities, a student with a disability is one who has a physical or mental impairment that substantially limits one or more of the student's major life activities. Commensurate with the nature and extent of the disadvantage, the College of Law makes reasonable accommodations in exam conditions for students, while respecting faculty members' discretion to decide how to test the substantive knowledge and analytical skills essential to the course or the legal profession and preserving the fairness of exams for students without disabilities. Students who believe they may be entitled to exam accommodations are encouraged to consult with the associate dean as soon as possible after entering law school, even if they have not yet decided whether to request an exam accommodation. Whenever possible, instructors do not learn the identity of a student who requests or receives exam or instructional program accommodations.

In addition to exam accommodations, the college is committed to providing reasonable accommodations for students with disabilities for all instructional, cocurricular, and extracurricular activities it sponsors.

Withdrawal

First-year students who withdraw during the academic year or who fail to reenroll for the second semester are not eligible to return to school. Instead, they must compete with other applicants for the year in which they wish to return. The reason for the withdrawal and the quality of work done before withdrawal or failure to reenroll are considered when students reapply.

Unless granted a leave of absence by the dean, second- and third-year students who fail to enroll for any semester during the academic year must obtain permission from the admissions committee if they wish to reenroll. (Students are considered first-year if they have less than 27 s.h. of credit at the time of withdrawal or failure to enroll.) The associate dean may grant a second- or third-year student a leave of absence for up to one year, if the student shows good cause.

Students who withdraw from the College of Law after paying tuition are entitled to a pro rata refund.

Student Conduct

Students are expected to act in a manner appropriate at a professional school. An act or omission that is dishonest or designed to take unfair advantage may subject a student to sanctions as serious as expulsion from school. Misconduct policies and procedures are published annually in the college's Student Handbook.

Research Centers

Research centers and outreach programs are an important part of the College of Law's service to professional and civic communities. The college was home to the nation's first agricultural law center. Since that center's closing, several new centers and institutes have been founded in diverse fields such as child and maternal health care, disability law and policy, human rights law, not-for-profit entities, public affairs, and public international finance. Located in and around the Boyd Law Building, these programs enjoy increasing national and international recognition for their specialized research projects and service activities. Several have enjoyed success in attracting competitive grants from state, federal, and private sources.

Link to the individual programs' web sites via the college's Research Centers web page (http://www.law.uiowa.edu/research/index.php).

Center for Human Rights

The University of Iowa Center for Human Rights was founded in 1999 as an outgrowth of the University's year-long commemoration celebrating the 50th anniversary of the Universal Declaration of Human Rights. The center's mission is
to promote and protect human rights at home and abroad by providing distinguished multidisciplinary leadership in human rights research, education, and public service. Its focus includes all categories of human rights, from first-generation civil and political rights, to second-generation economic, social, and cultural rights, to third-generation solidarity or community rights.

**Center for International Finance and Development**

The University of Iowa Center for International Finance and Development is a project to help laypersons understand the often impenetrable world of international finance and development. The center’s web site features a 300-page e-book, written by a University of Iowa law professor and a group of his students, that explains the complex world of international finance and development in plain language. It also offers related news, issues discussions, briefing papers, frequently asked questions, and links to other useful sites.

**Institute of Public Affairs**

The Institute of Public Affairs provides services and information to help officials maintain and strengthen the effectiveness of Iowa's state and local governments. The institute offers strategic planning for councils and boards, including facilitation and guidance for policy leadership groups. It provides training for newly elected mayors and city council members through a municipal leadership academy, and it publishes the Municipal Policy Leaders' handbook for mayors and council members. It also holds the Iowa Municipal Management Institute for city and county administrators.

**Larned A. Waterman Iowa Nonprofit Resource Center**

The Larned A. Waterman Iowa Nonprofit Resource Center was created in 2000 to help nonprofit organizations throughout Iowa. The interdisciplinary center works to increase accessibility to educational and service programs focused on strengthening nonprofit organizations. It collaborates with government agencies, nonprofit organizations, and educational institutions. It also introduces students to the nonprofit sector and develops their sense of public and community service.

**Law, Health Policy & Disability Center**

The Law, Health Policy & Disability Center is an emerging leader in law, technology, education, and research. Its aim is to improve quality of life for persons living with disabilities. Based at the University of Iowa College of Law, with offices in Washington, D.C., and elsewhere, the center concentrates on public policy and its impact on persons with disabilities, with emphasis on employment, self-determination, and self-sufficiency.

**National Health Law and Policy Resource Center**

The National Health Law and Policy Resource Center promotes laws and public policies that foster and facilitate accessible, affordable, high-quality health care for all Americans, particularly members of vulnerable and disadvantaged populations. It provides a nonpartisan forum for informed dialogue on health law and policy issues, based on the best available data and information, between academics, practitioners, and public policy makers.

**Facilities and Resources**

**Boyd Law Building**

The Willard L. Boyd Law Building exemplifies Iowa's continuing commitment to legal education and the legal profession. The large, circular structure reflects the special character of the Iowa law school and allows the college to operate in a physical environment in which every square foot of space is designed to promote the college's academic and professional programs.

Classrooms in the Boyd Law Building provide an atmosphere conducive to the college's goals. They are air conditioned, carpeted, and properly lit. Small seminar rooms, the clinic suite, and special-purpose learning areas are distributed throughout the building to permit students and faculty members to work together in close professional interaction. The largest classroom seats only 100 people. The student lounge, faculty lounge, and faculty offices are located on the same floor, encouraging interaction between students and faculty members.

**Iowa Law Library**

The centerpiece of the Boyd Law Building is the University of Iowa Law Library, which occupies space on four floors and is one of the major repositories of legal materials in the United States.

Iowa's collection currently is ranked second in the number of volumes and volume equivalents, and second in the number of titles among all U.S. law school libraries. It contains 1,233,072 volumes and volume equivalents and covers a full range of Anglo-American, foreign, international, and comparative law. The library contains in-depth collections on law of the United States and of every state and territory. Its collection of early English legal source materials and its holdings of state documents are extensive. Since 1968 the library has been a selective Federal Documents
Depository. An open-stack policy makes the collection accessible to all patrons, and a full staff of professional librarians serves students, faculty members, and other users.

The WESTLAW and LEXIS/NEXIS computerized information retrieval systems are available for training and research activities. A full range of legal and non-legal databases are available through the online catalog.

The entire collection of the law library is cataloged on the InfoHawk database, including the collection of U.S. government documents. The InfoHawk system also features an automated circulation system for checking materials out of the library.

The library uses OCLC (Online Computer Library Center) for online cataloging and interlibrary loan. OCLC's database contains the collections of most of the public and research libraries throughout the United States and the world.

Writing Resource Center

The Writing Resource Center is dedicated to strengthening law students’ command of writing skills central to the study and practice of law. The first writing center in the country established specifically for a law school community, the Writing Resource Center serves as an extension of the classroom and supplements the college's first-year legal writing, analysis, and research program.

Members of the Writing Resource Center staff help law students with a broad range of writing, including class assignments, seminar papers, law journal articles, and symposium presentations. They also assist students with résumés, application letters, and writing samples.

In addition to helping students with general writing skills in one-on-one tutorial sessions, the center's staff members train editors in editing skills, set up individualized programs of study, offer grammar and style workshops, and provide strategies for overcoming writer's block and adapting material for varied audiences.

The Writing Resource Center is staffed by writers, including graduate students enrolled in the Iowa Writers' Workshop, second- and third-year law students, lawyers, and a director who holds a Ph.D. in the area of writing instruction.

Career Services Office

The College of Law Career Services Office provides career planning and job search assistance to law students. Each year the office sponsors a comprehensive series of programs on career options and job search skills. It also maintains a library of resources and provides individual advising by professional staff. Job search assistance also is available to alumni.

The special rigor that characterizes Iowa's distinctive brand of legal education attracts a wide variety and growing number of recruiters to campus each year. During a typical academic year, more than 200 employers send representatives to Iowa City to conduct job interviews, and many more firms use the college's Career Services Office to search for prospective employees through written inquiries and off-campus interviews.

Iowa graduates traditionally have had excellent success in finding employment; usually, more than 98 percent are employed within a few months of graduation. The career services staff is happy to talk with prospective students regarding the college's programs and the success of its graduates.

Bookstore

The College of Law has its own bookstore, which carries all assigned texts and materials for law classes. It also stocks a variety of professionally prepared outlines, hornbooks, and other study aids, as well as a limited selection of school supplies and merchandise, including pens, notebook paper, binders, computer disks, exam software, stamps, t-shirts, and sweatshirts. The bookstore also can make change.

Photocopied handouts and teaching materials assigned by course instructors are available through the bookstore. Students may charge costs for books, class materials, supplies, and merchandise directly to their University accounts. The bookstore does not accept credit cards.

Information Technology

Since electronic information technologies are vital in legal and business work, the College of Law encourages all law students to become proficient with computers. Access to word processing software also helps law students draft the many papers, articles, and other manuscripts that are a regular part of the law curriculum. The college has installed 41 personal computers attached to a local area network for use by its students. Students also are encouraged to purchase personal computers and Microsoft Windows software, if possible, and to use them in connection with their law school work.

The law college provides network and Internet access from all student library carrels. To participate, law students
supply their own laptop computers, which must meet required specifications. Specifications are available from the Law Library computer support office. Wireless Internet access is available in the Law Library, the fourth-floor student lounge, journal offices, and other areas of the law building.

The college's computers are loaded with WordPerfect and Microsoft Office software, and the college provides training for and access to the two major online computer research databases, West Publishing Company's WESTLAW and Mead Data's LEXIS. Once students complete the training, they have unlimited free access to these services at home via their own PCs and on the student and public workstations in the Law Library.

The Law Library also provides CD-ROM workstations that allow access to databases in CD-ROM formats. Some of the titles available are United Nations documents, complete from 1945; Index to Legal Periodicals; TIARA, a database containing treaties; and numerous U.S. government documents published on CD-ROM.

The University provides free e-mail accounts to its students, faculty, and staff through its Information Technology Services office (ITS). Students can sign up for e-mail accounts online or at the ITS offices in University Capitol Centre. ITS advises University of Iowa students, faculty, and staff on computer hardware and software needs and can provide information about educational discounts on some purchases. ITS also offers a wide variety of free computer short courses throughout the year. For information on computing resources at the University, consult the Information Technology Services web site.

Copy Services

Copy machines are available on each floor of the law library. Students with a copy card can use any of the machines. Cards are available for purchase from the library's circulation desk. Students also may use networked printers in the library and charge them to their University accounts.

For better quality and/or high-volume copying, there is a University-operated copy service on the first floor of the Boyd Law Building. Prices are comparable with those at commercial concerns, and students may charge copying to their University bills.

Legal Aid for Students

Students in need of legal assistance may consider turning to the University's Student Legal Services. The Legal Services Corporation of Iowa also provides civil representation to indigent clients.

Law School Events

Parents and Partners Day

Each fall, the parents, spouses, and friends of all students are invited to the campus for activities sponsored by the Iowa Student Bar Association and the Iowa Law School Foundation. Past activities have included a simulated class, a brunch, a musical or auction, and a tour of the college. The weekend is a good opportunity for families and friends to see what the life of a law student is really like.

Supreme Court Day

The College of Law hosts the Iowa Supreme Court on The University of Iowa campus each fall. Third-year students present oral arguments in a moot case to the court, and faculty members host receptions at their homes for the justices, attorneys, and students, providing an opportunity for informal visits with members of the court.

Iowa Law School Foundation

During the three years that students spend at the College of Law, many of the classes, programs, and projects in which they participate are partially or totally supported by private gifts from law alumni and friends.

The Iowa Law School Foundation was created by the 1952 graduating class to promote close relations between the college and its alumni and to solicit gifts for scholarships, faculty support, and other projects that benefit the college.

Foundation funding benefits faculty positions, student scholarships, loans, research assistantships, guest speakers, and student orientation activities; the clinical law, Moot Court, Trial Advocacy, and Client Counseling programs; and the student-edited law journals. It also helps support Iowa Advocate, the law school's alumni magazine. Published twice a year, the magazine features articles and news about the college and its alumni, faculty, and students.

In order to support these programs and activities, the Iowa Law School Foundation actively solicits contributions from the college's approximately 9,400 alumni.

Courses
The following list includes all approved College of Law courses. The college does not offer each course every year. For information on current course offerings, consult the College of Law registrar. The College of Law Guide to Courses contains a list of courses that have been offered within the past two academic years. It also lists courses the college expects to offer during the next academic year.

### First Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>091:102</td>
<td>Introduction to Law and Legal Reasoning</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Basic concepts and intellectual skills necessary for understanding the first-year curriculum.</td>
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<tr>
<td>091:104</td>
<td>Civil Procedure</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Procedure before trial; commencement of a suit; subject matter jurisdiction; jurisdiction over the person and venue; pleadings, motion practice, including summary judgment, simple joinder of parties and claims in determining scope and size of the lawsuit; pretrial discovery procedures, the trial, claim and issue preclusion.</td>
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<tr>
<td>091:116</td>
<td>Constitutional Law I</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Constitutional allocation of governmental powers; doctrine of judicial review and nature of judicial function in constitutional cases; relationships among several branches of national government; the federal system, including powers delegated to national government, powers reserved to states, and intergovernmental immunities; role of judicial process in structuring limits within which society operates; institutional development of legal system, relationship among institutions within the system.</td>
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</tr>
<tr>
<td>091:120</td>
<td>Contracts and Sales Transactions</td>
<td>4 s.h.</td>
</tr>
<tr>
<td></td>
<td>Law that governs the otherwise unregulated sector of the economy; making and enforcement of promises, usually as part of a bargain; formation of agreements, consideration, invalidating causes, parole evidence and interpretation, conditions, and remedies; roles of promises and promissory exchanges in a modern economy; the law's limitations on freedom of contract; brief introduction to Uniform Commercial Code, Article 2.</td>
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<tr>
<td>091:124</td>
<td>Criminal Law</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Basic understanding of substantive criminal law; underlying premises of and justifications for criminal law; emphasis on general doctrines that dictate the minimum elements necessary to impose criminal liability, essential requirements of culpable conduct (an actus reus, or guilty act), blameworthy mental state (a mens rea or guilty mind); rape, homicide, causation, attempt, conspiracy, accomplice liability; various defenses to criminality, such as self-defense, duress, intoxication, insanity, diminished capacity.</td>
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<tr>
<td>091:130</td>
<td>Legal Analysis Writing and Research I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Structured development of effective skills in legal analysis, writing, and research; first of a two-semester sequence.</td>
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</tr>
<tr>
<td>091:131</td>
<td>Legal Analysis Writing and Research II</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Structured development of effective skills in legal analysis, writing, and research; second of a two-semester sequence.</td>
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</tr>
<tr>
<td>091:132</td>
<td>Property</td>
<td>4 s.h.</td>
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<td></td>
<td>Concept of private property as one of the legal system's basic foundations; historical development of Anglo-American property law examined in conjunction with changing currents of economic, social, and political thought; emphasis on understanding decision making by courts in the common-law tradition, and its interplay with legislative enactments intended to change the common law; fundamental notions relating to the origins of property rights; relationship of possession and ownership, with emphasis on capacity of property law to recognize a wide range of interest configurations; impetus for promoting ease and reliability in conveyance of property interests, commercially and gratuitously; function of public recording in providing stability to transfers of interest in land; role of adverse possession and prescriptive use in recognizing expectations based on long-standing property relationships; responsiveness of property law to social change as illustrated by modern reforms in landlord-tenant act.</td>
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<tr>
<td>091:364</td>
<td>Torts</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Development of tort principles; civil responsibility for harms to tangible personal and property interests; roles of legislatures, judges, juries; intentional harms, negligence, and strict liability considered from perspectives of jurisprudence, economics, and moral philosophy.</td>
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</tbody>
</table>
Second and Third Year

**091:125 Criminal Procedure: Investigation**  
Guarantees and rights of the Fourth, Fifth, and Sixth Amendments to the U.S. Constitution against police and prosecutorial practices designed to investigate and prove criminal cases; protection against unreasonable searches and seizures, guarantee against extraction of involuntary confessions, privilege against self-incrimination constraints upon securing confessions (i.e., *Miranda* doctrine), due process protection against unreliable suggestive identification procedures, right to counsel, protection against inculpatory admissions and identification practices; exclusionary rules and remedies that enforce constitutional guarantees.

**091:136 Property II**  
Continuation of 091:132; limitations imposed on landowner’s use of their property by private agreements, judicial actions, and public regulations; problem areas including servitudes, nuisance, eminent domain ("takings"), constitutional limitations on governmental activities adversely affecting private property, community planning, zoning and other forms of local land use control; discrimination as it relates to land development and housing; relative effectiveness of private ordering, judicial decisions, legislative enactments and administrative processes for resolving conflicts over use of land resources; relationships between law and other disciplines, particularly economics, in forging solutions to land use issues; law’s utility as an instrument for achieving societal objectives regarding land use.

**091:192 Art, Law, and Ethics**  
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 01H:182, 024:161, 033:175.

**091:193 Human Rights in the World Community**  
Introduction to established and developing legal rules, procedures, and enforcement mechanisms that govern protection of international human rights; liberal western and developing world notions of human rights, recent examples of human rights controversies worldwide; international human rights of women.

**091:195 Introduction to Public International Law**  
Introduction to fundamentals of international law, with focus on aspects of international law that concern U.S. interests; survey of sources, methodology, and major doctrines of international law, framed by understanding of diverse jurisprudential approaches; how international law relates to U.S. domestic law and institutions; procedural aspects of international law involving international institutions, including the International Court of Justice.

**091:196 Child Maltreatment, Juvenile Justice, and the Welfare System**  
Coercive state intervention through the juvenile justice and child welfare systems to protect children from maltreatment by parents and other caretakers; definitions of child abuse and neglect, reporting laws, civil child abuse and neglect proceedings, foster care and out-of-home placement of children, termination of parental rights, role of attorneys and guardians ad litem in child abuse and neglect proceedings.

**091:198 Advanced Legal Research**  
Builds on 091:130-091:131; in-depth exploration of American legal resources; current print and electronic resources that help students develop better, more efficient search techniques and select the most effective formats for their research; opportunity to review the basic sources of legal information, use varied techniques to access legal information, develop personal strategies for managing information; advanced training in LEXIS, WESTLAW, the Internet; nonlegal information sources important to the legal community, research resources of other legal jurisdictions and international law.

**091:200 Agricultural Law**  
Topics in agricultural law and policy, such as legal efforts to control the structure of agriculture (including payment limitations and legal restrictions on farm land ownership), agricultural cooperatives, commodity promotion boards, government price and income support programs, soil and water conservation regulations, control over location and operation of animal confinement facilities, mechanisms for regulating food sources and safety.

**091:201 American Legal History**  
3 s.h.

**091:202 Advanced Civil Procedure**  
3 s.h.
Complex civil litigation, personal and subject matter jurisdiction, discovery, intervention, necessary parties, interpleader, consolidation, discovery and confidentiality orders, appellate jurisdiction; mechanisms to structure trials such as bifurcation of issues; class actions.

091:203 Income Taxation of Estates and Trusts
Income tax basis of property acquired by gift or devise, part-gift/part-sale transactions, income and deductions in respect of a decedent, allocation of receipts and expenditures between income and principal, income taxation of trusts and estates, treatment of distributions of cash and property to beneficiaries, administration of marital-deduction formula clauses. Prerequisite: 091:272. Corequisite: 091:378.

091:204 Administrative Law
Formal and informal procedures, processes, and functions of state and federal administrative agencies; legislative, executive, and judicial control of their actions; nature and definition of administrative agencies; permissible delegation of authority to administrative agencies; scope of agency authority; agencies' right to obtain information from members of the public; citizens' right to obtain information in agencies' possession; definition and types of administrative rules; rule-making procedure; agency discretion to make law by rule or adjudication; right to a trial-type hearing before an agency; parties' specific rights in an administrative hearing, including notice, open or closed hearing, right to counsel, evidence, nature and exclusivity of the record; agency decision-making process, including role of hearing officers, separation of functions and bias of decision makers, nature of opinion required; judicial review of administrative action, including reviewability of agency action, primary jurisdiction of agencies, exhaustion of administrative remedies, standing, scope of judicial review, mechanics of judicial review.

091:206 Criminal Procedure: Adjudication
Adjudicatory phases of the criminal justice system: indictments and the charging process, preliminary hearings, applications for release on bail and pretrial detention, processes of discovery, guilty pleas, jury selection, conduct of criminal trials, sentencing proceedings and post-trial motions, appellate review, collateral remedies; focus on constitutional rights, specifically the Fifth, Sixth, Eighth, and Fourteenth Amendments; statutory provisions, rules of criminal procedure.

091:207 Arbitration: Law and Theory
The law of arbitration and its role in modern conflict resolution, conceptual framework and explanatory theories for the analysis of issues frequently encountered; statutory and contractual grounds for arbitration, such as labor relations, employment, consumer, and commercial transactions; the decision to use arbitration; the role of lawyers; judicial enforcement of arbitration agreements and arbitration awards; contractual issues and defenses; federal preemption; arbitrability and separability; remedies; the relationship between arbitration and litigation and mediation and other non-adversary forms of dispute resolution.

091:208 Antitrust Law
Laws dealing with restraints of trade, monopolization and mergers; history of these laws and their development in the courts; current doctrine and its underlying legal and economic theories; analytical tools of trade: sufficiency of economic efficiency as the measure of justice.

091:209 Advanced Torts
Basic knowledge of principles and practices of tort laws. Prerequisite: 091:364.

091:210 Appellate Advocacy I
Experience based on an assigned fictitious case: writing an appellate brief asserting the client's position, and arguing the case before a panel of students, faculty, community attorneys.

091:213 Business Bankruptcy Reorganizations
Reorganization of distressed businesses using chapter 11 of the Bankruptcy Code; prebankruptcy negotiations and out-of-court restructurings, avoiding powers and other tools to restructure the company, formation and confirmation of a plan of reorganization, post-confirmation issues; for work as commercial litigators or transactional lawyers.

091:214 Bankruptcy
Rights of individuals and entities under the federal bankruptcy laws, from perspectives of debtors and creditors; foundational topics from liquidation bankruptcy (chapter 7) to reorganization bankruptcy (chapters 11 and 13); consumer and business bankruptcies; advanced bankruptcy topics such as small business reorganizations, farm bankruptcies, ethical issues in bankruptcy law, international insolvencies. Prerequisite: 091:215 or 091:222.
091:215 Debt Transactions
Laws and practices of modern lending; procedures for collection of unsecured debts, including enforcement of judgments, exemptions, prejudgment remedies, fraudulent conveyances, statutory liens; secured transactions that involve real property (mortgages) and personal property (security interests governed by Uniform Commercial Code, Article 9); consumer and commercial transactions, counseling hypothetical creditor or debtor clients, understanding realities that shape enforcement of credit agreements.

091:216 Business Planning
Series of problems involving common business transactions in context of business planning and counseling; emphasis on problems of limited liability companies and closely held corporations; choice of business entity, formation of LLCs and corporations; allocation of ownership interests and control, issuance of securities and capital structure, valuation, dividends, reduction of capital, buying out of members/stockholders, acquisitions via merger or purchase of stock or assets, redemption of stock and liquidations, other problems of LLCs; related tax matters. Prerequisites: 091:241 and 091:272.

091:218 Federal White Collar Criminal Law
How corporations and their officers, directors, employees, and agents can violate criminal law; liability imposed under state and federal laws in the United States, criminal liability under laws of other countries; fundamentals of U.S. law; case studies of recent prosecutions involving American corporations.

091:219 Civil Procedure in Pre-Trial Theory and Practice
The law of pleadings and other pretrial matters presented in 091:104; hypothetical case developed from interview to pleading to early pretrial stages; experience drafting relevant pleadings and motions. Prerequisite: 091:104.

091:222 Commercial Transactions
Commercial debt transactions, with focus on use of personal property security interests; basic legal structure of Article 9 of the Uniform Commercial Code, related provisions of Articles 3 and 8 of the Bankruptcy Code; problems of commercial finance, skills involved in using commercial statutes (transaction planning and drafting).

091:223 Comparative Islamic Law
Sources of Islamic law; origins and functions of varied schools of jurisprudence; Islamic legal philosophy and Islamic legal rulings in contexts of five major schools of law; major legal topics covered by the Ottoman Legal Code. Same as 032:159.

091:224 Comparative Law
Comparative study of origins, development, and principal features of the world's main legal systems; common and civil law traditions; historical development of the main legal systems, their sources, ideologies, techniques; subjects important to international legal practice (e.g., international judicial assistance, application of foreign law in American courts; in-depth study of modern legal systems of the United States, Britain, France, Germany, Japan, Russia; introduction to other legal traditions, including preliterate tribal law, traditional Chinese and Islamic law. Same as 144:142.

091:225 Comparative Law in Post-Communist Countries
Law and legal reforms in Russia, the newly independent states (NIS), and post-communist countries of eastern and central Europe.

091:226 Comparative Equality
Affirmative action or "positive discrimination" for examining/comparing inequality and inclusion in the countries of France, Brazil, Canada, India, South Africa, and the United States; historical context in which affirmative action or positive discrimination programs have been implemented for certain groups within Brazil, Canada, India, South Africa, and the United States as arguments in favor of and against such programs in those countries; lessons learned from these countries applied to France to answer the question, "is France in need of affirmative action?"

091:227 Comparative Constitutional Law
Constitutional law structures; decision making and substantive results under a variety of different constitutional systems, including major Western and non-Western systems; forms of judicial review and separation of powers, forms of federalism and alternatives to federalism, conceptions of fundamental human rights.

091:228 Conflict of Laws

Problems created when a transaction or relationship has associations with more than one jurisdiction; emphasis on selection of appropriate jurisdiction-selecting rules, recognition of other states’ judgments; current evolution in theoretical approaches to these problems; limitations imposed on American state courts by the federal constitution.

**091:230 Consumer Law**  
3 s.h.  
Whether and how law should regulate rights of consumers and businesses to transact freely with each other; tension between laws that protect consumers from harmful consequences and principles of freedom to contract, caveat emptor, and free market economies that dominate traditional contract and tort law; state and federal consumer protection statutes, including Truth in Lending Act, Equal Credit Opportunity Act, Unfair and Deceptive Practices Acts; current topics in consumer law, including predatory lending, marketing fraud, arbitration clauses; realities faced by attorneys who advise businesses on compliance with consumer laws, competing concerns of plaintiffs’ attorneys and government officials who seek to enforce consumer laws.

**091:232 Constitutional Law II**  
3-5 s.h.  
Limits on governmental power imposed by the national constitution for protection of individuals; protection of life, liberty, and property by due process and equal protection; freedom of expression and association; religious freedom and the guarantee against establishment of religion; 1st and 14th Amendments.

**091:233 Comparative Law and Religion**  
3 s.h.

**091:234 Commercial Contract Drafting**  
2-3 s.h.  
Components of common commercial contracts, analytical and technical processes involved in drafting contracts for specific commercial purposes; contracts for services, agency agreements, employment agreements, stock or asset purchase agreement, problems associated with data processing contracts; trial drafting of appropriate clauses for a series of contract problems in varied commercial settings. Prerequisite: third-year standing. Corequisite: 091:241.

**091:235 Constitutional Law of the European Union**  
2 s.h.  
Constitutional law of the European Union; the EU's path of legal integration, sources of law, and substantive, temporal, and territorial jurisdiction; fundamental documents (e.g., Merger Treaty, Single European Act, Maastricht Treaty, Amsterdam Treaty); legal framework for exercise of community powers--legal basis, subsidiarity, proportionality, equal treatment; EU institutions--European Parliament, Commission, Council, Court of Justice and Court of First Instance, Court of Auditors; decision-making process and legal procedures; Common Market and free movement of goods, persons, capital, services; fundamental rights; Economic and Monetary Union; EU in international legal transactions, external powers of the communities; forthcoming enlargement of EU, options of institutional reform.

**091:236 Contemporary Russian Law in Historical Context**  
3 s.h.  
Contemporary law and legal reforms in Russia, in context of Russian, Soviet, and European history; introduction to the current Russian legal system; similarities and differences in the contemporary Russian legal system and the traditional (pre-1917) and Soviet legal models; major legal issues of contemporary Russia; degree to which Russian law is characterized by continuity or change relative to law of former Russian empire and USSR.

**091:237 Comparative Criminal Law Issues: United States and United Kingdom**  
1-3 s.h.  
Comparative study of issues in British and American criminal law; focus on the right of silence/right against self-incrimination in the two countries; historical origins and recent development of these rights in Britain and America with emphasis on the practical application of the rights; effect of capacity and age on the exercise of the rights; prosecutions's obligation of disclosure and discovery; confessions; and the admissibility of evidence.

**091:238 Comparative Law of Foreign Relations**  
3 s.h.  
Comparison of legal foundations for external relations in the United States, the European Union, post-Communist states, and other countries; external powers and objectives; instruments, principles, and actors who determine and carry out external policies; legal effects of international agreements and other aspects of international law; basic questions of constitutionalism raised by foreign relations law (i.e., division of competencies, separation of powers, protection of fundamental rights, issues of democracy and legitimacy, judicial review).

**091:239 Corporate Governance and Control**  
1-3 s.h.  
Principal issues in creation of appropriate governance and control systems for large publicly-held corporations; questions of corporate structure, shareholder voting rights, duties of directors, derivative suits, indemnification and transfers of control viewed from perspective of Delaware's statutory and common law. Recommended: 091:241.
091:240 Arbitration: Practice and Advocacy 1-2 s.h.
Skill development to effectively participate in arbitration and related court proceedings; advise clients on various aspects of arbitration; opportunity to draft an arbitration agreement, a petition to compel arbitration, a prehearing arbitration booklet with legal authorities and supporting exhibits, and pleadings necessary for judicial review; examination of all aspects of the arbitration process; procedures for post-award remedies and judicial review; hybrid methods of arbitration, applicable rules, and ethics concepts. Prerequisite: 091:207.

091:241 Corporations I 3-4 s.h.
Structure, characteristics of both large publicly and closely held corporations; distribution of powers among management, directors, shareholders; fiduciary duties that limit those powers; enforcement of such duties by shareholder suits; may include basic principles of agency, partnership, and limited partnership law.

091:243 Taxation of Business Enterprise 3-4 s.h.
Income tax treatment of corporations, partnerships, and limited liability companies, with focus on closely held firms and their owners; choice of entity, the life cycle of the entity (organization, operation, sale or liquidation), corporate mergers and acquisitions. Prerequisite: 091:272. Corequisite: 091:241.

091:244 Introduction to Disability Law and Policy 1-3 s.h.
Overview of the Americans with Disabilities Act (ADA), and related federal and state disability laws; emphasis on understanding recent Supreme Court decisions interpreting the ADA, particularly its employment provisions; lawyers' roles in supporting equality of individuals with disabilities.

091:245 Domestic Abuse Law arr.
The law's response to domestic abuse (i.e., the pattern of violent and coercive control used in adult intimate relationships); cultural contexts of domestic violence, legal and social reform efforts of the past decade and their impact on the administration of justice, use of common law and statutory injunctions, the criminal justice system's response, constitutional and interspousal torts, mediation, federal legislation.

091:248 Deposition Practice 2 s.h.
Actual practice of depositions; law of deposition practice, procedural prerequisites to a deposition, including drafting of necessary documents (e.g., subpoenas duces tecum); structure and strategies of taking and defending a position; students conduct depositions in varied circumstances (e.g., discovery of a party, perpetuation deposition of an expert). Prerequisite: 091:370.

091:250 Employment Law 2-3 s.h.
Rights of employers, employees in unorganized workplaces; legal issues that arise between employers and employees in nonunionized settings; hiring, discipline, termination, minimum wage, covenants not to compete, employment-related intellectual property issues, occupational safety and health, unemployment.

091:251 Topics in Employee Benefits Law arr.
Survey of major topics in employee benefits law; overview of the plans that are subject to the Internal Revenue Code, Erisa, or both; tax-qualification rules for retirement plans focusing on 401(k) plans; disclosure owed and relief available to plan participants under ERISA; fiduciary responsibility for investment decisions under 401(k) plans; and whether ERISA preempts state and local initiatives to expand health care coverage.

091:252 Family, Gender, and Constitutional History 3 s.h.
Same as 16A:175.

091:253 Employment Discrimination 2-3 s.h.
Legal prohibitions against discrimination in employment on the basis of race, sex, national origin, age; focus on Title VII of the Civil Rights Act of 1964; procedural and remedial problems, elementary issues of proof.

091:254 Education Law 3 s.h.
Law affecting governance of schools, with focus on public elementary and secondary schools; issues such as speech, association, privacy, procedural due process, curriculum control, special education, educational financing, religion, racial discrimination; allocation of power and discretion between federal and state authority; contrasting and complementing roles of legislator, educator, and judge; varied interests of state, teacher, parent, and student; related problems in private schools, state colleges and universities; interaction of law and educational policy. Corequisite: 091:232.
091:255 Environmental Law
Role of the legal system in addressing problems of environmental disruption, with special emphasis on air, water, hazardous waste pollution.

091:256 Federal Criminal Practice
Introduction to each step in the criminal process together with instruction in advocacy skills required for the effective practice of law; complete chronology of a typical federal criminal case, from grand jury investigation through post-trial motions; importance of strategic thinking. Prerequisite: 091:125.

091:258 Arts and Entertainment Law
Issues affecting creative artists, financiers, producers, other participants in the world of theater, print publishing, motion pictures, television, music, fine arts; emphasis on the doctrine of droit moral, including the federal Visual Artist's Rights Act and American courts' treatment of the moral rights; cases involving artistic control, credit and billing, grant of privacy and publicity rights, and sound-alike performers.

091:259 Federal Government Contracting
Specialized litigation forums created by the federal government to remedy contract disputes over federal contracts for goods, services, and construction; similarities and differences between the federal litigation system and the common law of contracts and UCC Article 2 law; assessment of whether the federal litigation forums and policy goals work; related issues most attorneys encounter during their practices.

091:260 Foreign Relations Law
Impact of the constitutional distribution of powers on the conduct of U.S. foreign relations; influence of separation of powers doctrines on conduct of foreign relations, status of international law in the U.S. legal system, role of courts in adjudicating issues affecting foreign relations, controversy over distribution of war powers between the president and Congress.

091:261 Health Law
Major areas of concern in health law; tension between quality, access, costs; may include malpractice, quality control, health care financing, access (insurance, Medicare, and Medicaid), licensing, bioethics (end-of-life decisions, informed consent, surrogacy, organ transplantation).

091:262 Federal Regulations of Health Care Industry: Fraud and Abuse
Impact of governmental regulation on business planning and transactions in application of federal fraud and abuse laws to organizational entities; False Claims Act and the Stark Law, corporate compliance programs, enforcement efforts. Prerequisite: 091:241 or consent of instructor.

091:265 Evidence
Rules of evidence developed in common-law courts and under statutes; judicial notice; examination of witnesses; privilege and competence; remote and prejudicial evidence; hearsay; burden of proof and presumptions; roles of judge and jury.

091:266 European Union Law
Law of the European Union; EU legal and institutional structure; role of the European Court of Justice in elaborating constitutional and administrative law for the EU on the basis of treaties and legislation; principle of free movement; progress of European integration.

091:267 Legal Externship
Experience in nonprofit organizations, government agencies; unpaid; usually summer.

091:268 Family Law
Creation, dissolution of marriage and parent-child relationships; lawyer's practical approach to family law problems combined with a broader view of how the law might treat those problems in light of findings from social and behavioral sciences.

091:270 Health Care Quality

Private law responses to quality-of-care and autonomy issues involving health care providers and their consumers; competing and overlapping liability models applied to health care providers, and liability exposure of different provider groups (individual health care professionals, provider groups, third party payors, drug and device manufacturers); range of litigation issues, including expert and scientific evidence, causation, damages, insurance issues as they relate to health care providers; effect of statutory reforms, such as experts qualifications, limitations on certain types of damage recovery, mandated dispute resolution mechanisms.

091:272 Basic Federal Income Taxation 3-4 s.h.
Operation, policies, principles of federal income tax, including gross income, deductions, property dispositions, tax accounting, assignment of income among family members, time value of money, leveraging.

091:274 Federal Courts: Constitutional Litigation and the Dual Court System 3 s.h.
Dual court and dual law system in the United States; emphasis on constitutional tort litigation (actions against governmental officials for violations of the U.S. Constitution); supremacy of federal law, preemption, federal incorporation of state law, federal and state court jurisdiction over cases arising under federal law, judicial federalism (including various abstention doctrines), the 11th Amendment; constitutional tort litigation, including the scope of the plaintiff's rights in constitutional tort actions; immunities that may be invoked by a defendant; range of legal and equitable remedies potentially available to a successful plaintiff.

091:275 Federal Courts: The Structure and Jurisdiction of the Federal Judiciary 3 s.h.
Overview of federal courts' federal-question, diversity, supplemental, and appellate jurisdiction; venue, removal of cases from state to federal courts; other issues in powers of federal judiciary, such as Congress's power to alter the structure and jurisdiction of the federal courts, of forum non conveniens doctrine, federal habeas corpus petitions, transfer of cases, claim and issue preclusion, powers of legislative courts.

091:276 Private International Finance 3 s.h.
International banking and securities transactions; major national markets of the United States, Europe, and Japan, and offshore markets; major areas of international regulation and policy, such as capital adequacy, clearance, and settlement.

091:279 Immigration Law and the Workplace 3 s.h.
Intersection of immigration and employment law, with focus on the United States; employment rights and remedies of immigrant workers, including undocumented workers; issues relating to employment eligibility verification and antidiscrimination protections; workers' claim of unpaid wages, protection for day laborers, English-only rules, entitlement to benefits such as workers' compensation, human trafficking, coverage under antidiscrimination statutes, and the right to engage in collective bargaining; gender implications; some discussion of international perspectives. Prerequisite: 091:250.

091:280 Immigration 1-3 s.h.
Legal, historical, social, philosophical, and policy foundations of immigration control; modern debate over immigration; criteria and procedures that govern admission of non-U.S. citizens to the United States for permanent residence and temporary visits; deportation criteria and processes; national security and civil liberties implications of immigration policy; refugees and political asylum; undocumented migrants; acquisition, loss, and significance of U.S. citizenship; focus on U.S. law with introduction to perspectives from comparative and international law; experience analyzing varied fact problems that require strategic decision making and interpretation of complex statutory provisions.

091:281 Interest-Based Negotiation for Lawyers 2-3 s.h.
Theory and practice of interest-based or problem-solving negotiation; acquisition and enhancement of the skills for this approach to negotiation; negotiation exercises.

091:282 International Business Transactions 1-3 s.h.
Legal and practical issues in international trade and investment; typical private transactions, such as the sale of goods (documentary sales transaction, INCOTERMS, letters of credit, agency, distribution), transfer of technology (franchising, licensing), and direct investment across national borders; how private international sales, investment, and licensing transactions are structured to permit private businesses to minimize and plan for the risks associated with conducting business on a global scale.

091:283 Copyrights 3-4 s.h.
Federal law of copyrights, primarily the Copyright Act of 1976; emphasis on copyright protections affecting new technologies, such as videotape, computer hardware and software, electronic data transfer, cable television rebroadcast; ability of legal concepts to keep pace with technological developments. Recommended: 091:286.

091:284 Insurance 1-3 s.h.
Legal principles of insurance; applicability of general principles of contract formation; principles involved in determining which persons and interests are protected, which risks are transferred, and when rights are at variance with insurance policy provisions; claims process, disposition of disputed claims; adoption of tort principles and statutes to alter common law approach to insurance contracts.

091:285 Foreign Comparative and International Legal Research 1 s.h.
Treaty research, locating and identifying documents from international organizations and tribunals, legal research in selected jurisdictions outside the United States; print and electronic sources and research methods in foreign and international law; project to complete a pathfinder on a foreign or international law topic.

091:286 Introduction to Intellectual Property Law 3-4 s.h.
Concept of intellectual property, survey of decisions in patents, trademark and unfair competition, copyright, trade secrets, related areas; issues arising from intersections of areas.

091:287 International Trade Law: Basic Norms and Regulations 3 s.h.
Basic norms and legal framework of international trade as expressed in the GATT/WTO regime and U.S. trade laws; issues raised by regional trade blocs such as NAFTA; controversies such as the economic and philosophical justifications for, and objections to, free trade from a variety of perspectives.

091:288 Jurisprudence 2-3 s.h.
Selected legal philosophies, with emphasis on legal positivism and natural law; relationship between law and morality. Same as 144:143.

091:291 International Environmental Law 3 s.h.
Laws and institutions developed by the international community to deal with international environmental problems, including those of the atmosphere (acid rain, ozone depletion, radioactive fallout, climate change), hydrosphere (land-based sea pollution, sea-based vessel pollution, transboundary groundwater diversion), lithosphere (hazardous waste disposal, toxic pollutants, decertification), biosphere (driftnet fishing, endangered elephants, loss of tropical rainforests).

091:292 Labor Law 3-4 s.h.
How national labor law regulates labor relations in the private sector; law relating to unionized employees and firms; right of employees to organize into unions; limits of concerted activities by employees; scope and provisions of collective bargaining; enforcement of the collective bargaining agreement; rights of individual employees in collective units and in labor organizations; lawyer's role in dealing with judicial, administrative, and arbitral tribunals involved in enforcing labor law; lawyer's role in complex interrelationships between policy, statute, judicial, and administrative decisions.

091:294 International Civil Litigation 3 s.h.
Issues that arise in litigation between litigants located in different nation-states; choice of law and personal jurisdiction issues in context of international litigation; litigation-limiting doctrines and devices such as forum non-conveniens and lis pendens; international enforcement of judgments, sovereign immunity, international discovery.

Formation and enforcement of agreements to enter arbitration in order to settle international business disputes; recognition and enforcement of arbitral awards, process of arbitrating an international business dispute; role-playing exercises to hone advocacy and decision-making skills.

091:297 Law and Accounting 2-3 s.h.
Accounting as the language of business; familiarization with the vocabulary of accounting, knowledge and skill development in using accounting information as an analytical tool; for students with no business background.

091:298 English Legal System 1 s.h.
Taught in spring London Law Consortium.
091:300 Land Use
Zoning, comprehensive planning, provision of services, subdivision development ordinances, and their role in construction of local community; mechanics of various procedural devices, including those for changing zoning restrictions through variances, rezonings, contract and conditional zonings, initiative and referendum process, agreements by cities and developers pursuant to platting processes; coordination of control efforts; theory and doctrinal investigations contrasted with actual problems and results. Prerequisite: 091:136.

091:303 Federal Indian Law
Specialized body of law that allocates power and authority in Indian country and has grown up around Native American peoples and their reservations; sovereignty arrangements, jurisdiction, federal Indian policy, tribal self-government. Same as 149:178.

091:306 The Law of Electronic Media
Legal and public policy issues in the operation and regulation of broadcasting, cable, and new technologies. Prerequisite: junior or senior standing.

091:307 Law in the Muslim World
International and comparative law issues relevant to countries in the Muslim world; legal cultures, institutions, rules, actors, processes of several jurisdictions including Afghanistan, Saudi Arabia, Iran, Iraq, Algeria, Nigeria, Palestine, Pakistan; Islamic sharia law as practiced in Sunni and Shiite countries; the role of church versus state, fundamentalism versus secularism, as manifested in the legal system; tension between communitarianism and individualism in modern constitutionalism; intertwining of customary and religious legal practices; first, second, and third generations of human rights; international law on issues such as terrorism, self-determination; women's rights, including polygamy, divorce, child custody, inheritance. Prerequisite: junior or senior standing.

091:308 Professional Responsibility
Public and private professional responsibility of lawyers; organization of the profession; its economics, ethics, and sociology.

091:311 Law of France and the European Union
Summer abroad program.

091:315 Mediation: Theory and Practice
Essential characteristics; comparison of mediation with litigation and other alternative dispute resolution processes; stages of mediation; confidentiality; enforceability of agreement; ethical problems, particularly lawyer-mediator; student role playing; short writing assignments.

091:320 Nonprofit Organizational Effectiveness I

091:322 Nonprofit Organizational Effectiveness II
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 024:248, 028:258, 032:228, 042:248, 06J:248, 174:248.

091:324 Patent Law
All aspects of U.S. patent law; patent claims, adequacy of disclosure, statutory subject matter, validity, inequitable conduct, infringement, remedies, varied specialized doctrines; focus on recent pronouncements from the Court of Appeals for the Federal Circuit. Recommended: 091:295.

091:328 Presidential Power
The president's constitutional power and how it is, or ought to be, subject to control by Congress or the judiciary; the president's powers in historical and contemporary contexts; topics such as presidential control of the executive branch (the Unitary Executive Theory), the presidency's protective power, the presidency's role in foreign policy and national security.

091:329 Products Liability
In-depth liability for defective products based on negligence, warranty, and strict tort theories.

**091:335 Selected Issues in Land Use Control**  
1 s.h.  
Zoning, comprehensive planning, provision of services and subdivision development ordinances, and the role they play in construction of local community; mechanics of varied procedural devices; coordination of control efforts; Kelo and eminent domain, Hurricane Katrina and land use matters; residential segregation through zoning ordinances; bringing requests for variance to a zoning board of adjustment; concepts from 091:136 in greater depth.

**091:340 Remedies**  
3 s.h.  
Legal and equitable remedies by which the law corrects injustice and redresses legal wrongs; remedies for tortious wrongs, including damages and injunctive relief; remedies for breaches of contract, including damages, specific performance, recession, reformation; law of restitution, with emphasis on restitutory remedies (quasi-contract, constructive trust, equitable lien).

**091:341 Managing National Security**  
1-3 s.h.  
Substance, process, and practice of national security law.

**091:342 Negotiations**  
2-4 s.h.  
Nature and theory of negotiations, diverse rhetorics (including the rhetoric of legal argument) relevant to conduct of negotiations, conflict between ethics and effectiveness; readings from game theory, social psychology, anthropology, rhetoric and ethics.

**091:343 Corporate Control and Shareholder Democracy**  
1 s.h.  
How corporate control can change hands through the proxy mechanism and tender offers; federal regulation of proxy contests, proposals to reform the proxy process, federal regulation of hostile tender offers. Prerequisite: 091:241.

**091:344 Sales of Goods**  
3 s.h.  
Role of the Uniform Commercial Code in governing unsecured sales of goods; applicability of Article 2, formation of sales contracts, warranties, performance obligations and gap fillers, entrustment and remedies; leases of goods (Article 2B); United Nations contention on the International Sale of Goods.

**091:345 Sentencing**  
3 s.h.  
Introduction to the law, history, and policies that govern criminal sentencing in federal and state systems; traditional indeterminate sentencing, modern determinate sentencing at federal and state levels, capital sentencing.

**091:347 The Supreme Court in Wartime**  
1 s.h.  
Facts and outcomes of Supreme Court cases as well as wartime pressures on the course (including cold war) that generate deference to the executive branch, including the military.

**091:354 State and Local Government**  
1-3 s.h.  
Allocation of decision-making authority in society; allocation between public and private decision makers; allocation among governmental units, and among public institutions; principles and policies that underlie legal doctrines and the relationship of those principles and policies.

**091:355 Securities Regulation**  
arr.  
Regulation and sale of securities to the public under the Securities Act of 1933 and state blue-sky laws; remedies provided through the Securities Act; regulation and litigation under the Securities Exchange Act of 1934, which focuses on companies with publicly-traded securities. Prerequisite: 091:241.

**091:357 A Survey of Gender Work and the Law**  
arr.  
Impact of law and legal norms on the economic status of women workers; historical and contemporary concerns, theoretical analyses, doctrinal developments, practical applications; intersections of race, class, ethnicity, gender, sexual orientation.

**091:358 Forms of Argument/Systems of Belief**  
2-3 s.h.  
Major theories of law relevant to study and practice of law in contemporary America; six distinct operating systems, including legal formalism, legal realism, the legal process school, law and economics, the legal positivist/analytic tradition, and critical legal theory (including legal studies, feminist legal theory, critical race theory); diverse forms of legal argument, including those associated with particular theories of law.
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<th>Course Code</th>
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<td>091:360</td>
<td>Taxation of Gratuitous Transfers</td>
<td>1-3 s.h.</td>
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<td>Justification of wealth taxation, effectiveness</td>
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<td>of current law, alternate methods of wealth</td>
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<td>taxation; federal estate, gift, and generation-</td>
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<td>skipping taxes; tax and estate planning;</td>
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<td>identification of the tax base and tax paying</td>
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<td>unit. Prerequisites: 091:272 and 091:378.</td>
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<td>091:369</td>
<td>Trademarks and Unfair Competition Law</td>
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<td>091:370</td>
<td>Trial Advocacy</td>
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<td>091:371</td>
<td>Trial Advocacy Board</td>
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<td>091:372</td>
<td>Stephenson Trial Advocacy Competition</td>
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<td>091:373</td>
<td>Stephenson Trial Advocacy Team</td>
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<td>091:374</td>
<td>Advanced Trial Advocacy--Stephenson Competition</td>
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<td>091:378</td>
<td>Trusts and Estates</td>
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<td>091:380</td>
<td>The Global Financial Crisis</td>
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<td>091:390</td>
<td>British Legal Methods Clinical Program</td>
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<td>091:395</td>
<td>Summer Legal Placement</td>
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<td>091:399</td>
<td>Judicial Externship</td>
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091:400 Law Review  1-2 s.h.
Work on *Iowa Law Review*.

091:401 Student Journal Editor--Law Review  arr.
Experience on the *Iowa Law Review* editorial staff: managing production, overseeing business operations, administering student writing program, selecting and editing articles for publication, supervising student research and editing. Eligibility based on previous writing for the journal.

091:402 Moot Court Board  1-3 s.h.
Experience as member of the Moot Court Board administering the Appellate Advocacy Program, researching appellate cases used in the program, judging appellate arguments. Prerequisite: membership based on performance in 091:210.

091:403 Advanced Moot Court Competition  1 s.h.
Advanced Moot court team; members are top advocates from previous year's Van Oosterhout/Baskerville competition. Fall of third year.

091:404 Van Oosterhout Baskerville Moot Court Competition  1 s.h.
Single-elimination tournament culminating in the final four advocates arguing before a panel of judges; advocates write a portion of the brief, argue for and against the issue they briefed.

091:405 Clinical Law Program--Internship  arr.
Experience working directly with faculty members on cases and in-house program; full participation in interviewing, fact investigation, negotiation, courtroom proceedings.

091:406 Clinical Law Program--Externship  arr.
Experience representing clients through legal assistance offices in eastern Iowa, under supervision of faculty members and staff attorneys.

091:407 National Moot Court Competition  1 s.h.
Participation by third-year students as law school's representatives in the regional Moot Court competition (fall semester), and in judging intramural Moot Court competitions (spring semester). Prerequisite: placement as one of four finalists in 091:404.

091:408 Child and Family Advocacy Clinic  arr.
Experience working with faculty members on cases involving children with health problems and their families; representation of clients in connection with health insurance, social security disability, education, and public benefits (e.g., food stamps, school lunch programs, WIC, housing, fuel and utility assistance, income support); interviews, fact investigation, negotiation, administrative and courtroom proceedings; close work with Carver College of Medicine faculty members and residents who staff pediatric units at University of Iowa Hospitals and Clinics.

091:410 Client Counseling I  1-2 s.h.
Foundation for recognizing and resolving legal, nonlegal, ethical issues in the legal interview; interviewing and counseling skills developed through practice sessions, lectures, observation.

091:412 Client Counseling Board  arr.
Coordination of client counseling program and Intrschool Client Counseling Competition under supervision of faculty advisor. Prerequisite: 091:410.

091:413 Client Counseling Competition  1 s.h.

091:415 Journal of Corporation Law  1-2 s.h.
Experience editing articles and writing commentaries for *The Journal of Corporation Law*, a student-operated scholarly publication that examines subjects of current importance to businesses and the bar.

091:416 Student Journal Editor--Journal of Corporate Law  arr.
Experience on *The Journal of Corporation Law* editorial staff: managing production, overseeing business operations, administering student writing program, selecting and editing articles for publication, supervising student research and writing. Eligibility based on previous writing for the journal. Prerequisite: 091:415.
091:420 Transnational Law and Contemporary Problems Journal
Experience researching and writing on issues in international and comparative law for the journal Transnational Law & Contemporary Problems. Prerequisite: second- or third-year law standing.

091:421 Student Journal Editor--TLCP Journal
Experience researching, writing, and editing on issues in international and comparative law for the journal Transnational Law & Contemporary Problems. Prerequisite: second- or third-year law standing.

091:425 Journal of Gender, Race and Justice
Academic year experience on The Journal of Gender, Race & Justice: writing two journal pieces, including a recent development and a note or a comment, and performing office duties. Prerequisite: second- or third-year law standing.

091:426 Student Journal Editor--Gender, Race and Justice
Experience on The Journal of Gender, Race & Justice editorial staff: managing student writing program, overseeing business operations and production, selecting symposium topic and participants, selecting and editing all publications pieces; eligibility based on writing and editing experience.

091:430 Jessup International Moot Court Competition
Participation by second-year students in intramural regional- and national-level moot court competition in international law; intensive criticism in appellate brief writing and oral argument. Prerequisite: 091:210.

091:431 Jessup Moot Court Competition Team
Participation as team member in Jessup International Moot Court Competition; preparation of memorials in fall, travel to February regional rounds; travel to international competition in Washington, D.C., for top two teams.

091:450 Corporate Law Practicum
One-semester externship with Justice Holland of the Delaware Supreme Court.

091:455 Health Law and Policy Practicum
Opportunity to participate in research involving current health law and policy issues, in collaboration with organizations such as public health agencies, health professional organizations. Prerequisite: consent of instructor.

091:460 Law Study Abroad at Bucerius
Exchange student study at Bucerius Law School, Hamburg, Germany. Fall semester.

091:463 Law Study Abroad at Catolica University
Exchange student study at the University of Católica in Lisbon, Portugal.

091:500 Independent Research Project
Work under faculty supervision; research.

091:501 Directed Research and Writing
Research and writing project unrelated to any substantive course; supervised by a faculty member.

091:502 Supplementary Writing
Supplemental writing project that is related to a student's course, but goes beyond the requirements for the course, and is supervised by the faculty member who teaches the course.

091:503 Writing Tutorial
Writing project on a subject or topical area specified by the supervising faculty member; group meetings; writing tutorial.

091:504 Tutorial
Work under faculty supervision; may involve substantive area of the law of jurisprudential ideas as they appear in various intellectual spheres; tutorials.

091:505 UI Center for International Finance and Development Tutorial
Experience maintaining a globally-read web site that hosts the E-Book on International Finance & Development and posts issues on important topics in international finance and development; aspects of public international finance, with focus on the International Monetary Fund and the World Bank.
091:506 LL.M. Tutorial
Prerequisite: LL.M. candidate.

1 s.h.

091:509 Journalism and Freedom of the Press
Constitutional theory and doctrine under the First Amendment, with focus on the free press guarantee and protection for news and journalism; prior restraints and injunctions against publication; libel; privacy; other communicative torts; commercial speech and news publications; public forum and time, place, and manner restrictions on the press and publishers; ownership, control, copyright, related intellectual property interests of the press; meaning of journalism, news, and news organizations; governmental control or sponsorship of news organizations; subsidies for the press; taxation of the press; access to the press; newsgathering; press privileges; equality and press freedom; problems in the financial and regulated sectors, such as regulation of business news periodicals; control of advertising by news organizations; advertorial practices and First Amendment freedoms; limits of press speech and journalism. Prereq- or corequisite: 091:232.

2-3 s.h.

091:511 Art and Free Speech Tutorial
Areas of constitutional theory and doctrine under the First Amendment, with focus on art and free speech. Prerequisite: 091:232.

arr.

091:512 Service Tutorial: The Skylark Project
Experience working with inmates serving long-term or life sentences at the Iowa Correctional Institution for Women in Mitchellville; cases screened by Iowa Coalition Against Domestic Violence, work supervised by coalition legal staff and pro bono attorneys; in-depth personal interview with inmate; experience helping inmate with commutation or parole applications (e.g., developing facts and gathering documents, including statements or letters from defense attorneys, law enforcement, prosecutors, judges, victims or victims' families, victim advocates, clergy, community members; medical accounts; hospital records); may include preparation of report for the project's review board. Corequisite: 091:265.

1 s.h.

091:515 Washington, D.C. Tutorials for the National Practice of Law
Insight into and experience with a national practice of law dealing with issues, specialized forums, and the policies and procedures that arise from practicing law for state clients in the nation's capital.

3 s.h.

091:600 Abused, Neglected, and Dependent Children
Laws relating to abused, neglected, and dependent children--those not receiving proper parental care and protection as defined by statutes and case law; history of child abuse, neglect, and dependency laws; jurisdiction of juvenile and family courts; abuse, neglect, dependency proceedings; termination of parental rights in abuse, neglect, and dependency cases.

arr.

091:601 Advanced Topics in Corporate Law
Wide range of topics; theory of the firm, fiduciary duties, corporate counseling issues, history of corporate law, and so forth. Prerequisite: one law or business course in corporate law or consent of instructor.

arr.

091:602 Asian Americans and the Law
Legal issues encountered by Asians and Asian Americans in the United States; how those issues have been addressed by Congress, state legislatures, the judiciary, the executive branch, the public, and the legal community.

arr.

091:603 Capital Punishment Seminar
Overview of the death penalty in America; moral issues; long-term trends limiting the use of the death penalty in the United States and abroad; legal issues and Eighth Amendment jurisprudence that has developed since the 1960s regarding limits on the exercise of juror discretion, jury selection, proportionality, the execution of minors, racial discrimination, mens rea requirements, capital appeals and collateral attacks, death penalty lawyering, and so forth; critique of death penalty bills proposed in recent years for Iowa.

arr.

091:604 Patent Prosecution Seminar
Drafting seminar on patent application preparation and prosecution; student drafting exercises and presentations on advanced patent law topics; administrative rules and procedures governing practice before the U.S. Patent and Trademark Office; for students who plan to practice patent law. Prerequisite: 091:324.

3-4 s.h.

091:605 Advanced Problems in International Environmental Law
Focus on the so-called trade and environmental debate.

arr.
091:606 Advanced Problems in International Business and Economic Relations
Legal aspects of contemporary problems in transnational business and economic relations; year-long seminar. Prerequisite: 091:282 or consent of instructor.

091:607 Animals and the Law
Issues concerning nonhuman animals and the laws that affect them; historic and philosophical rationales for conferring or refusing to confer legally cognizable rights upon nonhuman animals; topics such as laws governing use of animals (e.g., for scientific research, human consumption, companionship, entertainment), laws to preserve endangered species, laws governing international animal trafficking, laws governing efforts to establish standing in lawsuits aimed at improving animals' welfare; how laws relating to animals intersect with issues of broader concern, such as the rights of children and persons with severe mental disabilities, respect owed to cultural differences when crafting laws regarding fundamental areas of human activity, evolution of modern thought regarding basic human rights.

091:608 Advanced Topics in Intellectual Property
Opportunity to explore complex intellectual property issues with a focused topic area; for students experienced in intellectual property law. Prerequisite: one intellectual property course or consent of instructor.

091:609 Business Bankruptcy Reorganizations Seminar
Examination of the reorganization of distressed businesses using Chapter 11 of the Bankruptcy Code; prebankruptcy negotiations and out-of-court restructurings, avoiding powers and other tools to restructure the company, formation and confirmation of a plan of reorganization, and post-confirmation issues; suitable for those who plan to work as commercial litigators or transactional lawyers. Prerequisite: 091:241.

091:612 Criminal Law in Context: Legal and Social Images of Victims and Perpetrators
Criminal law contextualized by an in-depth study of the legal and social characterizations of victims and perpetrators in U.S. law, politics, and popular culture; overview of the law’s treatment of victims and perpetrators and its relationship to political and social dynamics over the past century; legal and social characterizations of victims and perpetrators in select areas of criminal law, including rape, domestic violence, and child sexual abuse; victim-precipitated crimes, specifically crimes involving claims of provocation and self-defense, and their relationship to the current victim-perpetrator discourse.

091:613 Constitutional Interpretation Seminar
How the United States Supreme Court interprets the Constitution; particular emphasis on substantive due process and equal protection doctrine. Corequisites: 091:232 or equivalent background and consent of instructor.

091:614 Design of Law
Development of ability to critique the design of laws and to refine laws; legal literature addressing the design of law, classic articles from design literature, and three basic codes adopted by different societies at different times--the Code of Manu, Blackstone's Commentaries, and the Code of Iowa; theories of how laws change over time, how laws are reformed for better or worse, preconditions for progressive social change that prompts refinement of a law that is working less than optimally; empirical assessments of a law's effectiveness and visual displays of detailed empirical information, such as that used in court and in Brandeis briefs.

091:616 Family Law in the World Community
Family law from an international and comparative law perspective; treatment of family law problems in varied legal systems; application of international treaties and conventions to issues such as child custody, adoption, reproductive freedom, domestic violence. Prerequisite: 091:195 or 091:268.

091:618 Cultural Property/Heritage
Concept of cultural property, measures for its protection, impact of these measures on the transfer of cultural items; traditional art and architecture, biological and fossil material, human remains; contexts in which issues have arisen, such as stolen cultural property, property acquired during armed conflict and in colonial settings, and property collected in the field or excavated; international, national, and state law, including UNESCO convention on illicit transfer of cultural property, U.S. Archaeological Resources Protection Act, Native American Graves Protection and Repatriation Act; how developing professional ethics codes affect the concept of cultural property.

091:619 Farm Labor Regulation
Farm labor regulation; seminar.

091:620 Law and Technology Seminar
Production of a model statute addressing the range of issues in the selected subject area with suggested solutions; definition of statute’s scope, research projects to identify existing law and develop competing ideas and approaches; further definition and a vote on the statute’s scope and policies; further research memoranda as the statute takes shape; drafting of the statute with seminar review sessions; students work as a draft committee modeled after the Commission on Uniform State Laws.

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<th>Course Code</th>
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<td>091:622</td>
<td>Elder Law</td>
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<td>Qualification for Medicaid, elder abuse and neglect, discrimination in employment and elsewhere, retirement pension planning and taxation, elderly patients' rights in nursing homes; conservatorships and guardianships.</td>
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<td>091:623</td>
<td>Critical Race Theory</td>
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<td>Race relations and racial discrimination in America from perspectives of the Critical Race Theory movement (CRT); affirmative action, hate speech, queer theory, voting rights, postmodernism, liberalism, Asian-critical theory, Latin-critical theory, federal Indian law, critical white studies; critical race feminism--essentialism, motherhood, lawbreaking, employment law, sexual harassment, global issues.</td>
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<td>091:624</td>
<td>Cyberspace Law Seminar</td>
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<td>The wide range of legal and public policy issues created by the newly-emerging electronic technologies; focus on student research, writing, presentations, discussion.</td>
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<td>091:625</td>
<td>The History of Free Labor</td>
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<td>Employer and employee rights and major changes in the common law of employment; actual rights, obligations, and protections on the job historically; dramatic changes in 19th century law; readings from original sources on free and unfree labor, such as slavery laws, the Thirteenth Amendment, supreme court cases dealing with free labor, treatises, significant court cases, modern legal and historical interpretations of free labor's history in American Law.</td>
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<td>091:626</td>
<td>Federal Antitrust Policy</td>
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<td>Topics in federal antitrust laws; cartels and other horizontal restraints of trade, measurement of market power, exclusionary practices by dominant firms, vertical restraints, the Robinson-Patman Act, public and private enforcement, remedies, history of antitrust policy; antitrust enforcement in particular markets, such as health care, computer technology, the learned professions. Prerequisite: a law or business antitrust course or consent of instructor.</td>
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<td>091:627</td>
<td>Seminar: Gender and Sexuality in U.S. Law</td>
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<td>Same as 016:279.</td>
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<td>091:629</td>
<td>History of Regulation of Smoking and Tobacco</td>
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<td>Regulation of smoking and tobacco use; history, beginning with 19th and early-20th centuries; state statutes and case law; OSHA, EPA, and FDA regulations; class action litigation, involvement of law firms in formulating tobacco company strategies, use of medical studies, economic history of the tobacco industry.</td>
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<td>091:631</td>
<td>Intellectual Property Research and Writing</td>
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<td>Opportunity to develop research and writing skills for intellectual property practice; basic intellectual property law research exercises; major drafting assignment, typically in intellectual property litigation. Recommended: 091:286.</td>
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<td>091:632</td>
<td>Higher Education and the Law</td>
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<td>Practice of law in and for a complex institution; problems confronting attorneys in higher education, doctrinal issues prevalent in a university setting; focus on real or hypothetical problems considered in light of background reading rather than doctrinal analysis.</td>
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<td>091:633</td>
<td>International Criminal Law</td>
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<td>How a single crime may occur in or harm more than one nation; questions addressed: which courts have jurisdiction, whose law governs; when countries may apply their criminal law extraterritorially; collaborative enforcement; the International Criminal Court.</td>
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<td>091:635</td>
<td>UI Center for International Finance and Development</td>
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<td>Study of problems and issues in the complex world of international finance and development; focus on the International Monetary Fund and the World Bank; research and writing a new issue for the UICIFD web site.</td>
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<td>091:637</td>
<td>Islamic Law and Government Seminar</td>
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Islamic law and institutions; theories concerning classical and modern Islamic law, examining contract law, homicide, procedure, personal status (marriage, divorce, inheritance), banking/financial, oversight, public trust, and bequests; principles and sources of Islamic jurisprudence and law, methods of deriving legal rulings; schools of thought including Sunnism, Shi`ism, Ibadism, and sub-groups; secular and Islamic law-based legal codes in Muslim countries (Iran, Saudi Arabia, Turkey, Tunisia, Morocco, and Pakistan); impact of political trends and social movements on Islamic law.

091:640 Human Trafficking
Scope of international human trafficking; framework of international law; American law governing trafficking, involuntary servitude, and related offenses from 13th Amendment to the present, including recent statutory developments such as the Trafficking Act of 2000 and amended act of 2003; prosecution strategies used by the Departments of Justice and Labor, other executive agencies; the combined prosecution/prevention/protection model in the United States; civil litigation by trafficking victims against their traffickers; potential and limits of state antitrafficking legislation; relationship between trafficking law and labor law; the annual State Department Trafficking in Persons report's role in U.S. foreign policy and its international law implications; varied legal issues involving trafficking and involuntary servitude.

091:641 Journalism and Freedom of the Press

091:642 Innovation, Business, and Law
Topics in antitrust, intellectual property, corporate, and securities law or the interfaces between those areas.

091:646 Nonprofit and Philanthropic Organizations
Issues in law and policy relating to philanthropic and nonprofit institutions; creation, role, nature, and history of nonprofit entities; tax exemption, tax treatment (including property and donor tax issues); political and legislative activities; roles of members, directors, officers; problems of external regulation, accreditation, ethics; special issues for religious organizations, community foundations, private foundations, universities; development of philanthropic and nonprofit activity in foreign jurisdictions.

091:647 The Law of the Frontier: U.S. 1820-1870
How law really functioned at the edges of the nation's jurisdictional limits; earlier patterns of power, adjustments for environmental circumstances; difference between concepts of law and justice.

091:650 Law and Colonialism
The role of law in colonial and imperial expansion, with focus on the history of Anglo-American empires; how importation of common law as part of the colonial enterprise changed indigenous societies (e.g., labor relations, property rights, family law, criminal justice); use of the rule of law to justify colonialism, law as a practical dilemma for administrators; how colonialism's legal history fits into broader theories of imperialism; current globalization of common law.

091:651 Law in Asia
Development and reform of law and legal institutions in selected Asian countries, including Vietnam, China, India; changing role of socialist constitutions; law and regulation of civil society's nonprofit organizations, philanthropy, grassroots organizations, and the state; reform of courts, prosecutorial institutions, legal process; transformation of the legal profession; struggle for authority of law and against corruption in socialist transitional states; law in globalization and export labor; foreign models and foreign donor support in Asian legal reform.

091:652 Law and the Civil Rights Movement in Alabama 1955-65
Alabama and civil rights, from the Montgomery Bus boycott to the Selma March, major civil rights organizations and their most visible leaders, fair hearings for constitutional challenges in the Alabama federal court, courageous local lawyers, and resistance to the dismantling of segregation embodied by George C. Wallace; significance of law and legal institutions in advancing or retarding a political movement of extraordinary significance, complexity, and volatility; impact of legal developments arising from the Civil Rights Movement on other protest/reform movements in subsequent periods; perspectives from recent literature commemorating Brown v. Board of Education. Same as 016:286.

091:653 Law and Popular Culture
How law and popular culture influence each other; viewing of selected films and a TV series involving different aspects of law and legal institutions; readings related to each film that raise issues in cultural studies, and legal and film theory.
091:654 Law, Politics, and the Family
Issues raised under the U.S. Constitution regarding state regulation of families; family and individual privacy, right to marry, procreation rights, parents' and children's rights.

091:655 Law of War, Peace, and Military Affairs
Three aspects of law's efforts to govern military affairs: international law of war, U.S. law regulating foreign commitment of the nation's military forces, rights of individual soldiers (particularly women, homosexuals, religious observers).

091:656 Labor Standards Legislation
Two federal statutes designed to intervene in the free play of market forces in certain segments of the labor market: Fair Labor Standards Act, Migrant and Seasonal Agricultural Worker Protection Act.

091:657 LL.M. Seminar
Basic research and analytical methodologies for the international and comparative law fields; workshop approach to project proposals, drafts.

091:658 Seminar on the First Amendment
Issues decided in the Supreme Court's unfolding jurisprudence under the First Amendment religion guarantees; conduct as free exercise of religion; strict separation of church and state in contexts of education, public funding, and use of public space; claims of religion for exemption from general law (e.g. Yoder, Smith); school prayer and its legacy (pledge of allegiance, Ten Commandments in public spaces); evolution, creationism, intelligent design in public school curricula; relationship between free speech and free exercise of religion; vouchers and public funding of private religious schools, need- and merit-based scholarship funding; cases, historical sources, religious and philosophical views.

091:659 Law and Lawyers in Literature
Fundamental societal issues and ethical questions examined through discussion of literary works, including novels and plays by writers such as Camus, Coetzee, Dostoyevsky, Durrenmatt, Faulkner, Ibsen, Kafka, Melville, Schaffer, Thucydides.

091:660 Medical Tutorial for Law Students
Participation on medical and/or surgical rounds under supervision of attending physician; didactic sessions on legal, medical, and ethical issues arising from the clinical experience, and issues such as peer review, credentialing, quality assurance, cost containment, AIDS, reproductive technology; recent developments in medical technologies. Cosponsored by Carver College of Medicine. Prerequisite: 091:261 or equivalent.

091:661 Legal Issues: Intercollegiate Athletics
Legal issues affecting college and university athletics and athletes; includes drug testing, recruitment, gender equity (Title IX), NCAA regulations, endorsement contracts, coaching contracts, trademark licensing, and broadcasting rights.

091:663 Advanced Topics in International Law
Contemporary problems of public international law and policy; issues arising from armed conflict, use of force, pacific settlement of disputes; human rights law and policy (individual civil, political, economic, social, and cultural rights; group rights such as self-determination, development, environment, peace); trade and development; environmental law and policy (e.g., climate change, species extinction, pollution).

091:664 Postconviction Remedies
Three postconviction remedies traditionally available to prisoners who wish to challenge their continued confinement: state postconviction relief, federal habeas relief, executive clemency.

091:665 National Security Law and Government Powers in Emergencies
National security powers of the federal government in national and international emergencies and crises; constitutional and statutory framework within which national security powers are exercised; conflicts between national security powers and individual rights, war powers and the rules of engagement, apprehension of foreign aliens through extradition or force; military tribunals and indefinite detentions of suspected terrorists, government practices in withholding information from the public and extracting critical information through extraordinary conduct, imposition of obligations on the United States under international law.
091:666 Notable American Trials: Trial Skills
Trial skills and strategy; real trial transcripts, contemporary accounts of the selected trials, secondary literature evaluating what actually happened in the courtroom and relevant history; skills of opening and closing argument, voir dire, direct and cross examination, witness selection, use of exhibits.

091:670 Advanced Issues in Nonprofit Organization Law
Topics relating to nonprofit organizations; may include formation and dissolution of nonprofit organizations (NPOs), internal governance and external regulation, accountability and ethics, tax issues, self-regulation in the nonprofit sector, categories of nonprofits (e.g., religious organizations, philanthropic foundations, charitable trusts, mutual benefit societies), international and comparative perspectives on nonprofits and nongovernmental organizations (NGOs); research and writing seminar.

091:672 Selected Issues in Family Law
In-depth look at an issue or set of issues in family law; relevant cases, statutes, scholarship; class visits or on-the-job observations with community members who play roles in the family law process being examined.

091:673 Sentencing Law and Policy Seminar
Sentencing as a key stage of the criminal-justice process; the purposes of sentences, guilty pleas and plea bargaining, procedural rights during the sentencing process, types of sentencing statutes and guidelines, community-based sanctions, death penalty, what constitutes cruel and unusual punishment in noncapital cases; parole release, probation and parole revocation, collateral sanctions and consequences.

091:674 Poverty Law
Governmental responses to poverty in the United States; federal, state, and local social welfare programs for low-income persons; policy issues, history of welfare provision; state responses to federal welfare devolution, women and welfare, immigration.

091:677 Selected Topics in Consumer Law
Topics relevant to broad issues in consumer law--effects of deregulating the consumer credit industry, rapid growth of consumer borrowing in other nations, merits of proposed policy reforms in consumer law; may include credit cards, usury regulation, disclosure requirements for consumer transactions, unfair and deceptive practices lawmaking, expansive uses of credit reporting; focus intersection of economic, social, and political consequences of current approach to consumer law; interdisciplinary perspectives. Recommended: course in consumer law, debt transactions, or bankruptcy.

091:680 Supreme Court Seminar
Supreme Court practice, procedure, jurisdiction; the art of opinion writing; in-depth analysis of cases on the court's pending docket; writing briefs, conducting research, conferencing cases sitting as a mock Supreme Court, assigning and preparing opinions, soliciting votes of colleagues; preparation of two opinions.

091:683 Rethinking Public International Law
Major transformations of public international law; how to integrate human rights into a system designed to secure world peace; transformation of laws of war; emergence of new sites of authority (supranational, international); blurring of line between public international law and constitutional law; conflicts of interpretation in relations between major players (United States, European and Asian countries).

091:685 Seminar: Religion and Law
The role of law in ongoing conflicts over the relationship between religion, morality, and society in the United States. Same as 032:240.

091:693 Transitional Justice
How states resolve and manage tensions between objectives of social peace, justice, reconciliation (e.g., redress past abuses of basic rights); judicial and nonjudicial responses, including criminal prosecution, truth-seeking initiatives, private lawsuits for compensation from wrongdoers, monetary reparations by states to victims, displacement of perpetrators from prominent positions; strengths and weaknesses of each approach and conditions under which an approach is suitable, examined through countries including South Africa, Peru, Chile, Argentina, Rwanda, Sierra Leone, former Yugoslavia; how methods increasingly are combined to achieve comprehensive societal remediation in aftermath of abuse.
Law Study Abroad

660:823 Program in Comparative Law in Bordeaux, France
Intensive course work in France taught by professors from Iowa and France. Five-week courses in May and June.

660:824 London Law Consortium
Study abroad program for students from seven law schools (Iowa, Georgia, Utah, Kansas, Missouri-Columbia, Indiana-Bloomington, Chicago-Kent); American and British law taught by faculty drawn from the seven schools and British universities; clinical law program, work with British barristers and solicitors.
Carver College of Medicine

Dean: Paul Rothman  
Executive dean: Peter Densen  
Interim senior associate dean, scientific affairs: Michael Apicella  
Associate dean, clinical and translational sciences: Patricia L. Winokur  
Associate dean, student affairs and curriculum: Christopher Cooper  
Associate dean, faculty affairs and development: Lois J. Geist  
Associate dean, veterans' affairs: John S. Cowdery Jr.  
Associate dean, diversity programs: Benita D. Wolff  
Associate dean, information technology: Boyd Knosp  
Assistant deans: James D. Henderson, Catherine Solow, Roger D. Tracy  
Degrees: B.S., M.A., M.D., M.M.E., M.P.A.S., M.P.T., M.S., Ph.D.  
Web site: http://www.medicine.uiowa.edu

The Roy J. and Lucille A. Carver College of Medicine is an integral part of The University of Iowa. It contributes to the education of several thousand University students, is home to ground-breaking research in a wide array of disciplines, and provides a statewide educational health care resource.

The Carver College of Medicine is the only college in Iowa that offers a curriculum leading to the Doctor of Medicine. It also offers a Bachelor of Science in clinical laboratory sciences, nuclear medicine technology, and radiation sciences (see "Undergraduate Programs" later in this Catalog section) as well as Master of Science and Doctor of Philosophy degrees in several disciplines, the Master of Physician Assistant Studies, and the Doctor of Physical Therapy (see "Graduate Programs" later in this section).

The college participates in the education of students in the Colleges of Dentistry, Nursing, Pharmacy, and Public Health, and in the life-sciences and health-related programs of the College of Liberal Arts and Sciences, the College of Engineering, and the Graduate College.

Health professionals from throughout the Midwest take part in the college's year-round program of continuing medical education. They update their knowledge and skills through refresher courses, clinics, and conferences.

Doctor of Medicine and other health science students have a number of opportunities to gain experience in private medical offices and community hospitals. M.D. graduates may pursue further training in the specialties of family medicine, internal medicine, surgery, and pediatrics at one of 10 University of Iowa-affiliated residency programs in six Iowa cities. They also have access to two transitional-year programs. The Carver College of Medicine also offers a variety of services in support of Iowa physicians and community hospitals.

In addition to its responsibilities for educating physicians, the college addresses broad public issues of distribution and organization of health care services. Its faculty members advise and serve on national, state, and regional health planning councils, health boards, and various health agencies; some faculty members also take part in the University's Center for Health Services Research.

Accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges, the Carver College of Medicine meets the requirements of all state licensing boards. Its M.D. diploma admits the holder to all privileges granted to graduates of all medical colleges before such boards. All other professional programs administered by the college are accredited by their respective accrediting bodies.

Professional Program (M.D.)

Doctor of Medicine

The Carver College of Medicine accepts 148 first-year students annually into its four-year course of study leading to the Doctor of Medicine (M.D.).

First and Second Years: Basic Medical Sciences and Clinical Foundations

The first three semesters present a core of sciences basic to the study of medicine and introduce students to the foundations of clinical practice.

**FIRST SEMESTER**

**099:163 Medical Biochemistry** presents concepts concerning structures of biological macromolecules, cellular metabolism, elements of human nutrition, molecular biology and genetics, and extra- and intracellular signaling mechanisms. It uses clinical examples to illustrate how alterations in these molecules and pathways can lead to pathological conditions.

**060:103 Medical Gross Human Anatomy** includes complete dissection of the human body with a regional focus that emphasizes relationships to the living system. Clinically relevant areas of radiologic imaging, surface anatomy, embryology, and clinical correlations complement the dissection experience. Students acquire anatomical knowledge
through lectures, small group work, and independent activities.

**050:120 Medical Cell Biology** presents concepts concerning the structure and function of the cell and its organelles at the molecular level. The course consists of basic science lectures and clinical correlations and relates basic cell biological concepts to the understanding and treatment of human disease.

**070:110 Medical Genetics** is integrated with ongoing classes in anatomy, biochemistry, and cell biology. It provides an overview of clinical and medical genetics, with particular emphasis on recent changes that affect clinical practice with respect to common diseases that have a genetic component.

**050:162 Foundations of Clinical Practice I** is the first semester of a sequential four-semester course that introduces clinical skills students need in order to become practicing primary care physicians.

The five major goals for students over the four-semester course are to develop knowledge, attitudes, and skills that are necessary for:

- maturation into a competent and confident clinician;
- maintaining a lifelong process of learning the practice of medicine;
- application of relevant basic science and clinical concepts and other scientific advances to the practice of medicine;
- application of the principles of health promotion and disease prevention to the practice of medicine; and
- increasing awareness of the ethical and social context in which medicine is practiced.

Through large group lectures, small case-based learning groups, and small-group skill building sessions, students focus on communication in the doctor-patient relationship, accessing and managing medical information, and applying basic principles of evidence-based medicine and medical ethics.

**SECOND SEMESTER**

**060:234 Medical Neuroscience** is a course for medical students, physical therapy students, and graduate students in the basic medical or related sciences. Through lectures, clinical correlate presentations, laboratories, and small group discussion sessions, the course emphasizes the interdisciplinary and integrated study of the human central nervous system. Its faculty is drawn from basic science and clinical departments.

**148:251 Principles of Medical Immunology** is offered by the interdisciplinary Immunology Program. Its goals are to teach basic components and mechanisms of the immune response as well as medical principles of normal and abnormal immunity. The course consists of lectures by Immunology Program faculty and small group case analysis sessions.

**050:240 Human Organ Systems** is an interdepartmental course that presents the normal structure (histology) and function (physiology) of human organ systems in a coordinated and integrated organ systems approach. The course is designed to emphasize structure/function relationships by integrating the microscopic anatomic and physiologic function of normal human organ systems. The course's faculty includes members of basic science departments and clinical departments.

**050:163 Foundations of Clinical Practice II** is the second semester of a sequential, four-semester course that introduces clinical skills students need in order to become practicing primary care physicians (see 050:162 for overall course goals). In this semester, students continue to work toward course goals through small case-based learning groups, large-group lectures, and small-group skill acquisition sessions. They also are introduced to clinical medicine in a shadowing experience with health care providers. Principles of doctor-patient communication are reinforced and performance of the components of the general physical examination are taught and practiced. Multiculturalism, preventive medicine, and the social context of medicine are included.

**THIRD SEMESTER**

**071:105 Pharmacology for Health Sciences: Medical** introduces basic principles of drug action and drug disposition through discussion of mechanisms of action, therapeutic uses, and side effects for a wide variety of commonly used medications. Lectures integrate knowledge from related scientific disciplines, including biochemistry, microbiology, pathology, and physiology. Students acquire knowledge of rationale and basis for appropriate selection of medications in clinical situations and an understanding of the basis for common drug-drug interactions and adverse drug reactions.

**061:103 Principles of Infectious Diseases** presents a comprehensive approach to the microbiology of infectious diseases, covering infectious agents at both the organismic and molecular levels. The molecular aspects of pathogenesis are presented as the basis for present and future preventive and therapeutic measures. The laboratory includes hands-on experiments ranging from principles of aseptic technique to the most modern molecular aspects of diagnostic microbiology.

**069:205 Medical Pathology I** starts with general principles of disease: cell injury, inflammation, immune mechanisms, neoplasia, and hemodynamic disorders, followed by etiology, pathogenesis, epidemiology, and major clinical and
morphologic manifestations of disease by organ systems. The course combines lecture information, small group analytic skills, and observation of current laboratory procedures.

**050:164 Foundations of Clinical Practice III** is the third semester of a sequential, four-semester course that introduces clinical skills students need in order to become practicing primary care physicians (see 050:162 Foundations of Clinical Practice I for overall course goals). This semester continues the knowledge, attitude, and skill acquisition begun in the preceding two semesters. Students continue to learn through small patient-centered learning groups as well as lecture and clinical skill-building small groups. Content areas include human sexuality, biomedical ethics, and problem-specific medical history and physical exams. Students begin to apply clinical history taking and physical exam skills learned in preceding semesters by taking complete histories and performing physical exams on simulated and real patients.

Some elective courses are available to students during the first and second years. These normally carry 1 or 2 s.h. of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician. Course offerings vary from year to year, but typical subject areas are global health issues, U.S. health care systems, and community health outreach.

**FOURTH SEMESTER**

**069:206 Medical Pathology II** is a continuation of 069:205 Medical Pathology I.

**050:183 Healthcare Ethics, Law, and Policy** introduces M.D. and physician assistant students to health care ethics, law, and policy. Students learn to appreciate the inseparable relationship between medicine and ethics, recognize key ethical obligations and challenges common in medical practice, identify sources of ethical value commonly used in ethical reasoning, and apply a systematic approach to clinical ethical reasoning. They learn fundamental legal doctrines and theories that relate to business and professional aspects of the law pertaining to health care delivery. They also develop an understanding of the relationship and contrasts between ethics and law in medical practice, and they gain familiarity with the ways in which health policy influences medical practice.

**050:165 Foundations of Clinical Practice IV ICD** is the final course in the foundation series. The fourth semester is devoted primarily to this major interdisciplinary course, which includes participation by a large proportion of the faculty and is vital in providing students with the tools for a lifetime of patient care.

Mornings are devoted to intensive review of the diagnostic and therapeutic aspects of organ-system-based clinical medicine. The reviews are presented by teams of specialty and subspecialty clinicians. Students spend afternoons acquiring and practicing the clinician's skills in history taking and physical examination and in learning specialized exams. Small group learning and clinical case conferences take place throughout.

Each student is evaluated individually during the semester. Evaluations include the student's approach to the patient, accuracy of history and physical examination, precision in communicating gathered data, ability to synthesize available data into a realistic differential diagnosis, and ability to apply the process of problem-based learning to the understanding of patient-based problems. Cognitive knowledge of topics covered in the morning lecture and small group sessions is assessed through computer-based multiple-choice examinations. Students who need further work receive guidance and assistance.

All M.D. students are required to pass Step 1 of the United States Medical Licensing Examination before they may be promoted to the third year of the curriculum.

**Third and Fourth Years: Clinical Training**

The clinical courses take place during the last two years of the medical curriculum. In order to qualify for graduation with the M.D., students must complete satisfactorily a total of 81 weeks of courses during the two clinical years: 69 weeks of required courses and 12 weeks of electives. Course distribution is 49 weeks in the first clinical year and 32 weeks in the second.

Clinical Beginnings (050:170), a required, 1 s.h. course, follows the first two years and precedes the start of clinical clerkships in the third year. Clinical Beginnings helps students make the transition between the first and the second years of the curriculum by emphasizing the “four Cs”: Clinical reasoning and reflection; the core Competencies (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communications skills, professionalism, and systems-based practice); interdisciplinary Collaboration and teamwork; and Critical appraisal of the literature and lifelong learning.

The required clerkships are as follows.

**Eight core clerkships:** internal medicine, obstetrics and gynecology, pediatrics, psychiatry, surgery, outpatient internal medicine, community-based primary care, and family practice preceptorship; each course includes a mix of inpatient and outpatient activities, introduces the student to a specific discipline or to the practice of medicine in the community, and presents the opportunity to develop and practice clinical skills.

**Required subspecialty clerkships:** anesthesia, dermatology, neurology, ophthalmology, orthopaedics,
otolaryngology, radiology, and urology, and courses in laboratory medicine and electrocardiography.

**Advanced clerkships:** subinternship, in which the student assumes responsibility for managing patients in a variety of approved medical disciplines, supervised by a senior resident and a faculty physician; emergency room or intensive care rotation.

**Three electives:** electives chosen from clerkships listed in the course book distributed by the Carver College of Medicine.

**FIRST CLINICAL YEAR COURSE REQUIREMENTS**

All medical students must complete satisfactorily 49 weeks of courses, including 050:170 Clinical Beginnings (one week), 40 weeks of core clerkships, and 8 weeks of courses chosen from the required subspecialty clerkships.

**SECOND CLINICAL YEAR COURSE REQUIREMENTS**

All medical students must complete satisfactorily 32 weeks of clerkships chosen from those not completed in the first clinical year, including the required subspecialty clerkships and electives.

Primary venues for clinical training of medical students are the University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, and the Des Moines Area Medical Education Consortium Inc. Students also participate in the family practice preceptorship and the community-based primary care clerkship, which are off-campus rotations. Other courses may be assigned to off-campus sites, as well.

**Admission to the M.D. Program**

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. AMCAS applications are available for completion in May of the year preceding the beginning of the class for which application is being made. Prospective students are urged to apply as early as possible. The deadline for AMCAS submission is November 1.

Secondary applications are forwarded to applicants whose AMCAS applications pass a review conducted by the college. A $60 fee must accompany the secondary application from all applicants.

Admitted applicants must have an official transcript from each college they have attended sent to the University's Office of Admissions.

**Technical Standards for Admission and Retention**

The Carver College of Medicine seeks students who will serve the needs of society best, and it strives to graduate skilled and effective physicians. To achieve these goals, it applies the following principles and technical standards to candidates for admission and to continuing students.

**PRINCIPLES**

Technical standards refer to criteria that go beyond academic requirements for admission and are essential to meeting the academic requirements of the M.D. program.

Applicants to the Carver College of Medicine and students continuing in the college, with or without disabilities, are expected to meet the same requirements.

Matriculation and continuation in the college assume a certain level of cognitive and technical skill. Medical students with disabilities are held to the same fundamental standards as their nondisabled peers. Although not all students should be expected to gain the same level of proficiency with all technical skills, some skills are so essential that mastery must be achieved, with the assistance of reasonable accommodations where necessary.

Reasonable accommodations are provided to assist in learning, performing, and satisfying the technical standards.

Every reasonable attempt is made to facilitate the progress of students, providing that such efforts do not compromise collegiate standards or interfere with the rights of other students and patients.

**TECHNICAL STANDARDS**

Applicants for admission to the Carver College of Medicine and continuing students must possess the capability to complete the entire medical curriculum and be granted the degree. To this end, they must complete all courses in the curriculum successfully. In order to acquire the knowledge and skills to function in a broad variety of clinical situations and to provide a wide spectrum of patient care, M.D. students must have abilities and skills in five areas, including observation; communication; motor skills; intellectual, conceptual, integrative, and quantitative abilities; and behavioral and social attributes.
Technological compensation can be made for some disabilities in certain areas, but each student must meet the essential technical standards in such a way that he or she is able to perform in a reasonably independent manner. The use of a trained intermediary is not acceptable in many clinical situations, because it implies that the student's judgment must be mediated by someone else's power of selection and observation.

Observation: Students must have the functional ability to observe demonstrations and experiments in the basic sciences and must have sufficient use of the senses necessary to perform a physical examination.

Communication: Students must be able to relate reasonably to patients and establish sensitive, professional relationships with patients, colleagues, and staff. They are expected to communicate the results of the history and examination to the patient and to their colleagues with accuracy, clarity, and efficiency.

Motor: Students are expected to participate in basic diagnostic and therapeutic maneuvers and procedures. Those who cannot perform these activities independently should be able to understand and direct the methodology involved in such activities.

Intellectual, conceptual, integrative, and quantitative abilities: Students must be able to learn to analyze, synthesize, solve problems, and reach reasonable diagnostic and therapeutic judgments. Students are expected to be able to display good judgment in the assessment and treatment of patients. They must be able to learn to respond with prompt and appropriate action in emergency situations.

Behavioral and social attributes: Students are expected to be able to accept criticism and respond with appropriate modification of their behavior. Students also are expected to possess the perseverance, diligence, and consistency necessary to complete the M.D. curriculum and enter the independent practice of medicine in a reasonable period of time. They must demonstrate professional and ethical demeanor and behavior in all dealings with peers, faculty, staff, and patients.

Cultural Competency: Medical students must be able to communicate with and care for persons whose culture, sexual orientation or religious beliefs are different from their own. They must be able to perform a complete history and physical exam on any patient regardless of the student's and patient's race, religion, ethnicity, socioeconomic status, gender, age or sexual preference. Similarly, students must be able to interact professionally with colleagues and other healthcare professionals without regard to race, religion, ethnicity, socioeconomic status, gender, age or sexual preference.

Applicants who may not meet these standards are encouraged to contact the college's admissions office.

Admission Requirements

Applicants for admission to the Carver College of Medicine must have a baccalaureate degree; or they must be enrolled in a baccalaureate degree program, have earned at least 94 s.h. of credit or the equivalent, and expect to receive their degree before enrolling in the Carver College of Medicine. They must have earned college credit in the following courses.

Physics: a complete introductory course (one year), including lab instruction.

Mathematics: college algebra and trigonometry; applicants who completed college algebra and trigonometry in high school must take a course in advanced college mathematics or in statistics.

Chemistry: a minimum of one complete introductory course in organic chemistry (one year), ordinarily following a complete introductory course in modern general chemical principles, each with the appropriate laboratories.

Biological sciences: a complete introductory course in the principles of biology, or zoology and botany (one year), each with the appropriate laboratories; and an advanced biology course (one semester or quarter); recommended advanced biology courses include biochemistry, molecular and cell biology, human physiology, genetics, and microbiology.

English: two courses (including composition and literature); the requirement may be waived if the applicant's school has an integrated writing requirement in courses across its curriculum.

Social and behavioral sciences, and humanities: four courses; because writing skills are important in the study and practice of medicine, prospective applicants are encouraged to fulfill this requirement with courses that include a writing component; recommended courses include behavioral psychology, foreign language, and other courses that encourage appreciation for diversity and cultural competency.

Fulfillment of these requirements does not guarantee admission to the Carver College of Medicine. The college's admissions committee selects applicants who appear to be best qualified to study and practice medicine.

Applicants must have a cumulative g.p.a. of at least 2.50 for all college work. Applicants should have taken the required science courses for a grade rather than electing pass/fail grading.

Preference is given to Iowa residents with high scholastic standing. Consideration also is given to outstanding nonresidents.
Applicants are required to take the Medical College Admission Test (MCAT) no earlier than five years before and no later than September of the year of application. MCAT registration is available on the AAMC web site (http://www.aamc.org).

Personal interviews are part of the admission process. Candidates invited for an interview are contacted by the admissions committee.

An external criminal background check is performed for all admitted students at the time of admission. Applicants accepted on or before February 15 must submit an advance payment of $50 by March 1. Applicants accepted after February 15 must submit the $50 payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees.

All students who enter the Carver College of Medicine are required to comply with the pre-entrance and annual health screening program developed by the University's Student Health Service in cooperation with University of Iowa Hospitals and Clinics.

All registered Carver College of Medicine students are required to maintain health insurance (or an equivalent care plan) that satisfies minimum standards of coverage. Insurance coverage must be maintained continuously throughout each year of attendance at The University of Iowa.

Financial Support

The Carver College of Medicine's philosophy is that no student should be denied a medical education due to a lack of financial resources. Admissions decisions at the Carver College of Medicine are made without consideration of financial need. Therefore, the Carver College of Medicine financial aid staff actively seeks financial aid sources so every student interested in a medical education can finance that education.

Financial assistance is provided by the Carver College of Medicine primarily on the basis of demonstrated financial need. Although a limited number of collegiate or institutional grants are available for the most economically disadvantaged students, most aid is in the form of loans. Examples of federal loan programs are the Federal Direct Stafford/Ford Student Loan, the Federal Direct Unsubsidized Stafford/Ford Student Loan, the Federal Perkins Loan, and the Primary Care Loan (PCL). Students also may qualify for Federal Direct Grad PLUS Loans or private loans to supplement their financial aid package.

In addition, the college supports scholarship and loan programs through permanent endowments and/or contributions from alumni and friends of the Carver College of Medicine. These funds are administered by the college's financial aid office and are awarded as a part of a student's total financial aid package. Funds to support short-term emergency loans are available for students with immediate financial need.

A small number of Dean's Scholarships are awarded by the college's admissions office to highly qualified candidates on the basis of their academic excellence, leadership abilities, and their potential to enrich the college. Dean's Scholarships are included in the recipient's overall financial aid package.

To learn more about financial aid, contact the Carver College of Medicine Office of Student Affairs and Curriculum financial services department.

Academic Rules and Procedures

Student Promotion

The Carver College of Medicine has established promotion policies and procedures to ensure that each of its graduates has adequate skills, knowledge, judgment, ethical standards and personal integrity to assume the responsibilities of a medical doctor. The student promotions committee, made up of seven faculty members and two students, performs these duties with the cooperation, advice, and judgment of course directors, faculty members, students, and administrators.

The committee recommends specific actions to be taken when a student's skills, knowledge, judgment, or ethical behavior is in any way considered consistently marginal or unsatisfactory. Possible recommendations include dismissal of the student from the college; suspension for a specified period of time; requiring the student to repeat all or any part of the curriculum on academic probation; and allowing the student to continue on academic probation with a full or partial course load. The committee's recommendations are forwarded for action to the executive dean of the Carver College of Medicine.

Medical students have the right to appeal a promotion decision. They must submit the appeal in writing to the Carver College of Medicine’s executive dean within five days of notification of the decision. Appeals are considered by the Appeals Committee, made up of faculty representatives of the Medical Council and the Executive Committee, a medical student, a lay member, and the associate dean for student affairs (ex officio). Students may request an opportunity to appear before the Appeals Committee to make a statement and answer questions. The committee then
makes its recommendation to the college's dean, who is the final authority.

Specific information about student promotion policies and procedures is available from the Office of Student Affairs and Curriculum and is online in the Medical Student Handbook. See Office of Student Affairs and Curriculum/Student Handbook on the college's web site.

**Leaves of Absence, Withdrawal, Reinstatement**

The Carver College of Medicine has established policies regarding leaves of absence, dropping courses, withdrawal from the college, and reinstatement to the college. Information about each of these policies is available at the college's Office of Student Affairs and Curriculum and is published annually in the Medical Student Handbook.

**Disputes and Complaints**

Student complaints concerning actions of faculty members or departments are pursued first through mechanisms established in the Carver College of Medicine. These procedures allow the greatest flexibility for all concerned in resolving a conflict. They are intended for situations such as grading disputes, alleged academic dishonesty, alleged dishonesty during a clinical rotation, alleged unethical or unprofessional conduct, and perceived discrimination or harassment.

Complaints regarding sexual harassment are handled confidentially in accordance with University policy and procedures; see the University's Policy on Sexual Harassment.

For information about the established informal mechanisms, contact the Office of Student Affairs and Curriculum or see the Medical Student Handbook.

**Undergraduate Programs**

The Carver College of Medicine offers a Bachelor of Science with majors in clinical laboratory science, nuclear medicine technology, and radiation sciences. The clinical laboratory sciences major is offered through a partnership with the University of Nebraska Medical Center. Each program offers a certificate of completion in addition to the bachelor's degree. See Clinical Laboratory Sciences, Nuclear Medicine Technology, and Radiation Sciences in the Catalog.

Undergraduate study in the Carver College of Medicine is guided by the following academic rules and procedures.

**Health Insurance, Immunizations**

All health professions students are required to provide proof of health insurance coverage annually. Contact the University Benefits Office or see For Students/Health Insurance/Health Science Major on its web site (http://www.uiowa.edu/hr/benefits/index.html).

All health sciences students must show proof of health examinations and screenings annually. For more information, contact Student Health Service or see General Info/Forms, Data, and Reports/Health Science Students on its web site (http://www.uiowa.edu/~shs/general_info/forms.shtml).

**Application for Degree**

Students who want to be considered for graduation must file an Application for Degree with the Office of the Registrar before the deadline for the session in which the degree is to be conferred. Students who want to have a minor listed on their transcript must indicate this on the degree application form so that completion of the requirements for the minor can be verified.

**Academic Recognition**

The University of Iowa and the Carver College of Medicine recognize academic achievement every fall and spring semester.

**Graduation with Distinction**

Graduating students may be recognized for their scholastic achievement upon recommendation by their academic program and with the dean's approval. Graduation with distinction, high distinction, or highest distinction is determined by cumulative and University of Iowa grade-point average. Highest distinction requires a g.p.a. of 3.85 or higher; high distinction requires a g.p.a. of 3.75 to 3.84; and distinction requires a g.p.a. of 3.65 to 3.74. Radiologic technology course grades are not included in grade-point-average.

To graduate with distinction, students must have completed a minimum of 60 s.h. in residence at The University of Iowa and must have completed 45 of the final 60 s.h. before their final semester of registration.

Students graduating with distinction are recognized at graduation and a notation is added to their transcript and
diploma.

Dean's List

Students in the undergraduate Tippie College of Business, Colleges of Engineering, Liberal Arts and Sciences, and Nursing, and undergraduate programs in the Carver College of Medicine who achieve a grade-point average of 3.50 or higher on 12 s.h. or more of University of Iowa graded course work (including Guided Independent Study courses) during a semester (or summer session) and who have no hours of I (incomplete) or O (no grade reported) for that enrollment are recognized by inclusion on the Dean's List for that semester (or session).

President's List

University of Iowa undergraduate students who achieve a grade-point average of 4.00 on 12 s.h. or more of University of Iowa graded course work (including Guided Independent Study courses) and who have no hours of I (incomplete) or O (no grade reported) for two consecutive semesters (including summer session) are recognized by inclusion on the President's List.

Financial Support

Students are eligible to apply for undergraduate financial aid. Scholarships, grants, loans, and part-time job placement are administered by the University's Office of Student Financial Aid. Part-time work in related areas is sometimes available.

Degrees, Minors

Grading, Residency

Students must earn a g.p.a. of at least 2.00 each semester in all college work attempted, all work undertaken at The University of Iowa, and all graded work attempted after admission to the Carver College of Medicine. Students enrolled in a program that uses the pass/fail/honors grading system must pass all courses required to complete the program. Students must earn a C or higher in professional specialty (modality) courses.

The residence requirement may be met by earning the final consecutive 30 s.h. in residence at The University of Iowa, or 45 of the last 60 s.h. in residence, or an overall total of 90 s.h. in residence.

Nonresident instruction includes course work and correspondence study at other colleges, universities, and institutions. Undergraduate course work in other University of Iowa colleges counts toward residency requirements.

Double Majors

Students may earn more than one major in the Carver College of Medicine by meeting the requirements for each major.

Two Bachelor's Degrees

Students who want to earn two bachelor's degrees, each from a different college, may do so under a joint degree program. They must have their combined course of study approved by the dean of the Carver College of Medicine and the dean of the other college to be eligible for a joint degree program.

Second Bachelor's Degree

Students who already hold a bachelor's degree and wish to earn an additional bachelor's degree must complete at least 30 s.h. consecutively in the Carver College of Medicine. Students who hold a B.A. or B.S. are considered to have completed the College of Liberal Arts and Sciences General Education Program except for the foreign language requirement. Holders of other degrees must meet college and program degree requirements. Students with a B.A. or B.S. must satisfy the residence requirement for a bachelor's degree at Iowa. Individuals interested in earning a second bachelor's degree must apply for admission to the degree program at the University's Office of Admissions.

Joint Bachelor's Degree

Students may earn two University of Iowa bachelor's degrees in a joint degree program in the Carver College of Medicine and the College of Liberal Arts and Sciences. Students generally begin their academic program in the College of Liberal Arts and Sciences and must be eligible for admission to the Carver College of Medicine Bachelor of Science program they wish to enter.

Students enrolled in a joint degree program must meet the bachelor's degree requirements specified by both colleges.
The exact length of time necessary to complete the program is determined by the major areas of study selected in each college. Students who enter the joint degree program are assigned two faculty advisors, one in the major department of the Carver College of Medicine and the other in the major department of the College of Liberal Arts and Sciences.

Students interested in a joint degree program should see the director of the Bachelor of Science program of their choice in the Carver College of Medicine.

Minors

Students graduating from the Carver College of Medicine may earn a minor or minors in any degree-granting department or program in the college outside of their major department or in another college of the University by meeting that department's requirements for the minor. Generally, students must earn a minimum of 15 s.h. in the minor.

Duplication and Regression

Duplication occurs when students take the same course more than once or when they take a course that duplicates the content of a course they already have completed satisfactorily. Regression occurs when students take a course that is less advanced or at a lower level than one in the same subject that they already have completed satisfactorily. Duplication and regression are assessed by the registrar at the time of graduation analysis. Semester hours earned by duplication or regression do not count toward graduation.

Courses Offered by Other University of Iowa Colleges

Students who enroll in courses offered by other University of Iowa colleges are governed by those colleges' rules in matters regarding the courses. See http://www.uiowa.edu/~provost/deos/crossenroll.doc.

Registration and Grading

Information about tuition and fees, registration, and deadlines is available from the Office of the Registrar. Students who add or drop a course after registration or who register late are assessed a fee. Each course dropped after the deadline results in a W (withdrawal) on the transcript (see Changes in Registration below). Students are not allowed to register for full-semester courses after the second week of the semester or the first week of the summer session. Students must register for off-cycle courses before the first day of the course. The maximum permitted registration is 20 s.h. in a regular semester and 10 s.h. in the summer session. Students must obtain permission from the head of the division to register for more than the maximum semester hours allowed.

Changes in Registration

Courses may be added with the signatures of the advisor and the course instructor at any time during the first one-fifth of the course. They may be dropped at any time during the first two-thirds of the course. Approval is required from the dean of the Carver College of Medicine for all other changes in registration and is granted only in extraordinary circumstances. Students are assigned a mark of W (withdrawn) for any course dropped after the first one-fifth of the course.

Students who have registered for courses offered for variable or arranged credit may change the number of semester hours with the signatures of the instructor, the advisor, and the head of the division at any time before the end of the first two-thirds of the course.

Other changes in registration (such as to audit for zero credit) may be made only during the first one-fifth of the course. It is the student's responsibility to see that the change of registration form is approved by the necessary individuals and is delivered to the Registration Center. Changes in registration become effective on the date the completed form is submitted to the Registration Center.

Withdrawal of Registration

Students may withdraw registration without academic penalty at any time before the end of the first four-fifths of the course, but no credit is given for the course. Later withdrawal results in automatic assignment of an F. Students who withdraw are not reinstated after the deadline for that session.

Grading Procedures

Grading procedures vary from program to program. Students should consult individual program policy statements for information.

Auditing Courses
Students may register to audit a course with approval of the appropriate program director and course instructor. In addition to obtaining these signatures, students must register for zero credit in the course to be audited. The mark of R (registered) is assigned if the student's attendance and performance are satisfactory; if they are unsatisfactory, the mark of W (withdrawn) is assigned. Courses completed with a mark of R do not meet any college requirement and carry no credit toward graduation. Auditing may not be used as a second-grade-only option.

Second-Grade-Only Option

Repeating courses for the second-grade-only option is allowed in extraordinary circumstances. To repeat a course for the second-grade-only option, students must obtain the signatures of the course instructor, the program director, and the dean on a form available from the Office of the Registrar; the signed form must be returned to the Registrar's office before the end of the first one-fifth of the course. Both grades remain on the permanent record, but only the second one is used to calculate grade-point average and credit earned.

Incompletes

A grade of I (incomplete) may be reported if the reasons for inability to finish the course satisfactorily are acceptable to the program director and the course instructor. There also must be evidence that the course work will be finished within a reasonable length of time, usually by the end of the next academic session. Incompletes not removed by the deadline for submission of final grades for the next session result in the assignment of a grade of F. Changing the grade when an incomplete has been converted to an F requires the signature of the dean on a change-of-grade form.

Reports to Students

Instructors notify any student whose work falls below the minimum acceptable level once the problem is recognized. Grades are reported on the student's transcript, following University protocol. No formal midterm reports are given.

Academic Progress, Probation, Dismissal

Students are expected to maintain satisfactory academic and professional standards and to demonstrate reasonable progress toward the Bachelor of Science and certificate of completion. Students who fail to maintain satisfactory academic progress or professional standards of behavior as determined by their program may be placed on probation or dismissed from the program. Probation serves as a warning that the student will not graduate unless his or her academic performance and/or professional behavior improves.

Students on probation are restored to good standing by the program director upon evidence that the problem has been corrected. Such action is usually taken at the end of a semester or session. Entering students may be admitted on probation if they fail to meet the minimum stated standards for admission.

Continued unsatisfactory scholarship or unprofessional behavior may result in dismissal from a program. Students dismissed from a program must reapply for admission through the regular, established program admissions process, following review by a faculty committee, at least four months before the requested date of readmission.

Students placed on probation or dismissed from a program are notified in writing by the dean; copies are placed in their files.

In order to be restored to good standing, students placed on academic probation during a semester or summer session must have a University of Iowa g.p.a. and a cumulative g.p.a. of at least 2.00 by the end of the next semester (for full-time students) or by the time they have earned the next 8 s.h. (for part-time students). Students on academic probation who fail to meet the grade-point average requirement in the designated time frame for restoration to good standing are subject to dismissal at the end of the semester.

Students are expected to attend classes regularly. Students who miss classes or examinations because of illness are expected to present evidence that they have been ill. Any other absences must be approved in advance by the course instructor.

Any offense against good order committed by a student in a classroom, clinical setting, or laboratory may be dealt with by the instructor or referred to the program director. The instructor reports in writing any disciplinary action taken against a student to the program director. Repeated or exceptional instances are reported to the dean.

Academic Misconduct

Plagiarism and Cheating

All cases of plagiarism and cheating in the Carver College of Medicine are reported to the dean with a statement of relevant facts. The program director and the instructor may submit recommendations for appropriate disciplinary action.
The individual instructor may reduce the student's grade, including assignment of the grade of F in the course. A report of this action is sent to the student, the program director, and the dean.

The dean, or a faculty committee appointed by the dean, may impose the following or other penalties, as the offense warrants: disciplinary probation, requirement of additional hours for the degree, suspension from the program for a period of time, or recommendation of expulsion from the program.

**Appeals Procedure**

Students who want to appeal a decision should appeal in writing to the dean within two weeks after the date of receipt of the decision in writing.

**Graduate Programs**

The Carver College of Medicine offers graduate programs leading to the M.S. in pathology; the M.S. and Ph.D. in biochemistry, free radical and radiation biology, microbiology, molecular physiology and biophysics, and pharmacology; the Ph.D. in anatomy and cell biology and physical rehabilitation science; the Master of Physician Assistant Studies (M.P.A.S.); and the Doctor of Physical Therapy (D.P.T.).

Many of the college's faculty members participate in the Graduate College's interdisciplinary programs in genetics, immunology, molecular and cellular biology, and neuroscience, and in its Biosciences Program.

**Biosciences Program**

The Graduate College and the Carver College of Medicine offer the interdisciplinary Biosciences Program, which gives graduate students the opportunity to become acquainted with basic molecular research in the Departments of Anatomy and Cell Biology, Biochemistry, Biology, Chemistry, Speech and Hearing, Microbiology, Molecular Physiology and Biophysics, Pharmacology, and the Programs in Free Radical and Radiation Biology, Genetics, Human Toxicology, Immunology, Molecular and Cellular Biology, and Neuroscience. The Biosciences Program offers graduate students flexibility during their first year of study, after which they select the department or program in which they will earn their Ph.D. See Biosciences (Graduate College) for details.

**Medical Scientist Training Program**

The Medical Scientist Training Program (MSTP) is a joint M.D./Ph.D. program offered by the Carver College of Medicine and the Graduate College. The program prepares trainees for careers in academic medicine, with emphasis on basic and clinical research. It provides an effective means for integration of graduate education and doctoral research with the full complement of clinical studies necessary for the M.D. With few exceptions, requirements for the combined M.D./Ph.D. can be completed in seven to eight years of continuous study. See Medical Scientist Training Program for details.

**Translational Biomedicine Program**

The Carver College of Medicine and the Graduate College offer an interdisciplinary program leading to an M.S. or Ph.D. in translational biomedicine. See Translational Biomedicine (Graduate College) for details.

**Joint Degree Programs**

Students who wish to pursue an M.D. in combination with a graduate degree must be admitted to both degree programs and must make arrangements with the graduate department and with the Carver College of Medicine associate dean for student affairs and curriculum. Students must be admitted to both programs before they can be admitted to the joint degree program. Examples of joint degree programs are the M.D./M.P.H. with the College of Public Health, M.D./M.B.A. with the Tippie College of Business, and the M.D./J.D. with the College of Law.

**Faculty**

Nearly all Carver College of Medicine faculty members have full-time appointments. Their work in practice and research is integral to their teaching. Many have earned national and international honors.

**Interdisciplinary Programs, Centers**

The college's interdisciplinary programs and centers draw strength from college faculty members and the facilities available to them, without regard to departmental units or to the distinction between graduate and postgraduate training. For more information, contact the senior associate dean for scientific affairs.

The following centers are subdivisions of the Carver College of Medicine.
Alzheimer's Disease Research Center

The Alzheimer's Disease Research Center studies Alzheimer's disease and related neurological conditions from the viewpoint of neuroanatomy, neuroimaging, neuropsychology, and neurochemistry. The center's purposes are to improve the diagnosis and treatment of these conditions, to disseminate information on new research to the public, and to contribute to a better understanding of the neural basis of cognition.

Carver Family Center for Macular Degeneration

The Carver Family Center for Macular Degeneration was organized to prevent the devastating consequences of macular degeneration in the majority of people at risk. For those already affected by the disease, the center works to develop sight-saving medical, pharmacological, and surgical treatments.

Holden Comprehensive Cancer Center

The Holden Comprehensive Cancer Center (HCCC) coordinates the efforts of University of Iowa faculty and staff in research, education, and clinical programs related to all aspects of cancer. The HCCC is recognized by the National Cancer Institute as an NCI-designated cancer center and has "comprehensive" status, a designation that recognizes the depth and breadth of interdisciplinary cancer research activity taking place at the University of Iowa.

Iowa Cardiovascular Center

The Iowa Cardiovascular Center coordinates research and training programs related to cardiovascular diseases. It encompasses several federally and nonfederally funded programs: Program--Project Grant on Integrative Functions in Neurovascular Control, the Specialized Center of Research (SCOR) in Coronary and Vascular Diseases, SCOR in Occupational and Immunologic Lung Disease, Program--Project Grant on Cerebral Blood Vessels, SCOR in Hypertension, SCOR in Congenital Heart Disease, SCOR in Cystic Fibrosis, Cystic Fibrosis Foundation Research and Development Program, Program--Project Grant on Gene Therapy for Cystic Fibrosis Lung Disease, Cystic Fibrosis Foundation Gene Therapy Center, and Training Center for Clinical Management of Lipid Disorders. It also coordinates several training programs and a coordinated program of other interdisciplinary research supported by a number of individual project grants.

The center occupies two floors of cardiovascular research laboratories and administrative offices in the Medical Research Center.

Iowa Mental Health Clinical Research Center

The major emphasis of the Iowa Mental Health Clinical Research Center is the study of schizophrenia. The center provides the facilities for research linking the clinical picture of the illness with its underlying neurobiology. The center's seven research units conduct the necessary integrative and interdisciplinary research to advance knowledge about the disease.

Facilities

Education and Patient Care Facilities

Classes are taught in the Medical Education and Research Facility, the Bowen Science Building, the Medical Education Building, the Medical Laboratories, and in classrooms and conference rooms of University of Iowa Hospitals and Clinics.

The Hardin Library for the Health Sciences is centrally located on the health sciences campus.

Students acquire clinical experience in the 680-bed University of Iowa Hospitals and Clinics, in the 93-bed Iowa City Veterans Affairs Medical Center (including observation beds), and in affiliated hospitals and ambulatory care centers throughout Iowa.

Faculty members of the Carver College of Medicine and the College of Dentistry make up the clinical staff at University of Iowa Hospitals and Clinics, whose 21 clinical services are directed by the heads of the corresponding academic departments in the two colleges. These faculty members also provide instruction for more than 700 resident physicians, dentists, and fellows who make up the house staff of University of Iowa Hospitals and Clinics, which provides facilities for teaching all major medical specialties, for residencies in all specialties, and for fellowships in a number of subspecialties.

University of Iowa Hospitals and Clinics serves as a tertiary care center for Iowa and portions of adjoining states. Many patients are referred to University of Iowa Hospitals and Clinics for care and treatment not readily available in their home communities.

Research Facilities

The Carver Biomedical Research Building (CBRB), which opened in fall 2005, greatly expands the college's research space. It has 135,000 square feet and five floors of laboratories, and its lower level is home to a state-of-the-art nuclear
magnetic resonance facility. Connected to CBRB is the Medical Education and Research Facility, which opened in 2001 with 220,000 square feet of education and biomedical research laboratory space.

The Eckstein Medical Research Building, which opened in 1989, was designed to provide spaces, mechanical systems, and support services that offer flexibility and adaptability for current and future research. The facility enables interdisciplinary groups of faculty scientists, each of whom is researching a human biology problem at the advancing edge of science, to conduct research in close proximity to other select researchers.

Other buildings that house research labs include Medical Laboratories, Bowen Science Building, Medical Education Building, Medical Research Facility, Medical Research Center, and buildings on the University's Oakdale Campus.

A number of facilities that support the faculty's research and teaching endeavors are administered through the Carver College of Medicine dean's office. University of Iowa research facilities housed in the college include the Central Microscopy Research Facility, the DNA Facility, the Flow Cytometry Facility, the Gene Targeting Core Facility, the Gene Transfer Vector Core Facility, the High Resolution Mass Spectrometry Facility, the Keck Dynamic Image Analysis Facility, the Large-Scale Fermentation Facility, the Molecular Analysis Facility, the Nuclear Magnetic Resonance Facility, the Tissue Culture/Hybridoma Core Facility, and the Transgenic Animal Facility.

The Office of Consultation and Research in Medical Education is made up of education specialists from a range of disciplines who serve the faculty, staff, and administration of all Carver College of Medicine programs. The office provides educational consultation, initiates and cooperates in educational research endeavors, and conducts faculty development activities.

Nondepartmental Courses

050:001 Medical Elective
arr.

050:003 Clinical Clerkships
arr.

050:005 Medical Student Research Fellowships
0 s.h.

050:006 Doris Duke Clinical Research Fellowship
0 s.h.
Clinical research projects under University of Iowa faculty mentorship. Prerequisite: leave of absence from Carver College of Medicine.

050:120 Medical Cell Biology
2 s.h.

050:147 End-of-Life Care for Adults and Families
2-4 s.h.
End-of-life issues in care of adults, older adults, and their families. Prerequisites: 096:135 and 096:136, or R.N. student standing, or consent of instructor. Same as 046:146, 096:147, 153:147.

050:162 Foundations of Clinical Practice I
5 s.h.

050:163 Foundations of Clinical Practice II
5 s.h.

050:164 Foundations of Clinical Practice III
5 s.h.
Experience practicing and expanding clinical skills and self-directed learning skills in clinical medicine; understanding medical practice in a social context. Prerequisites: 050:162, 050:163, and second-year M.D. enrollment.

050:165 Foundations of Clinical Practice IV ICD
arr.
Basic diagnostic considerations in each of medicine's clinical disciplines, as required of primary care providers. Prerequisites: 050:162, 050:163, 050:164, and second-year M.D. enrollment.

050:166 History of Medicine in Western Society
2 s.h.

050:168 Teaching of Physical Exam Skills
1-2 s.h.
Components of complete physical exam and educational techniques for teaching such skills: teaching of physical exam components to first-year students. Prerequisite: fourth-year M.D. enrollment.

050:170 Clinical Beginnings
1 s.h.
Orientation to third-year clerkships; technical skills, simulated patient activities, competence with the physical exam.
Foundations of Clinical Practice for Physician Assistants
Practice and expansion of clinical skills; development of broad understanding of the practice of medicine in social context; strengthening of self-directed learning skills in clinical medicine. Prerequisites: 117:101 and Physician Assistant Program enrollment.

Foundations of Clinical Practice IV for Physician Assistants
Basic diagnostic considerations in each of medicine’s clinical disciplines, as required of primary care providers.

Facilitation of Patient-Centered Learning
Experience in facilitating patient-centered learning groups; case discussion, critique of student presentations and assignments, clinical insight, evaluation of student performances.

Community-Based Primary Care
Introduction; clinical activities, work with community agencies and resources, didactic and conferences. Prerequisite: M.D. enrollment.

Healthcare Ethics, Law, and Policy
Ethical and legal aspects of health care delivery.

The Examined Life: Writing and Medicine
Literature, essays, poetry; discussion of participants’ writing; students prepare portfolios of their own writing.

Career Life Planning
Students’ individual interests, values, and decision-making processes important in selecting a specialty, engaging in the match process, and integrating oneself into the medical profession; personal career development, culture and climate in which physicians work and learn.

Introduction to Medical Education at Iowa
Introduction to first-year fall courses; advanced concepts in anatomy, biochemistry, cell biology, and clinical reasoning skills; for M.D. students.

Community Health Outreach I
Presentations and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

Community Health Outreach II
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

Community Health Outreach III
Presentations, patient-based learning groups, readings, and practical experience working with agencies that provide health care and wellness promotion to communities; substance abuse; child, adolescent, and adult health; aging; interpersonal violence; homelessness.

Clinical Dietetics
Nutritional aspects of health and disease, with emphasis on medical nutrition therapy; human nutrition in the clinical state as it relates to physiology and biochemistry.

MSTP Research
Research experience. Prerequisite: Medical Scientist Training Program enrollment.

MSTP Clinical Connections
Experience with physician-scientist preceptor in medical interviewing, physical examination, patient presentation through direct patient interaction. Prerequisite: Medical Scientist Training Program graduate phase enrollment.

Analyzing and Presenting Medical Research
How to read, interpret, and present medical and scientific literature; students read and present representative papers from scientific and medical literature. Prerequisite: consent of instructor.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>050:225</td>
<td>Translational Biomedical Research</td>
<td>arr.</td>
<td>Student research guided by mentor.</td>
</tr>
<tr>
<td>050:228</td>
<td>K30 Preceptored Research</td>
<td>arr.</td>
<td>Academic credit for the mentored research project required of trainees in the Graduate Training Program in Clinical Investigation. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>050:240</td>
<td>Human Organ Systems</td>
<td>8 s.h.</td>
<td>Microscopic structure and function of major and specialized human organ systems; approach integrating normal microscopic anatomy and human physiology. Prerequisite: M.D. enrollment.</td>
</tr>
<tr>
<td>050:270</td>
<td>Responsible Conduct in Research</td>
<td>0 s.h.</td>
<td>Ethical issues; misconduct and fraud; proper handling of data; responsible authorship; conflict of interest; research on animals and human subjects. Prerequisite: consent of Carver College of Medicine.</td>
</tr>
<tr>
<td>050:280</td>
<td>Medicine, Literature, and Writing</td>
<td>arr.</td>
<td>Insights, freedom, joy, responsibilities, and challenges of a life in medicine; reading, discussion, individual creative writing.</td>
</tr>
<tr>
<td>050:281</td>
<td>Global Health Issues--International</td>
<td>1 s.h.</td>
<td>Global health topics; theoretical structure for interpreting global health care issues; for medical students.</td>
</tr>
<tr>
<td>050:282</td>
<td>Global Cross-Cultural Clerkship</td>
<td>arr.</td>
<td>Cross-cultural medical program at an international site; focus on health care problems of a specific community; individual educational objectives set in advance.</td>
</tr>
<tr>
<td>050:283</td>
<td>Health Informatics I</td>
<td>3 s.h.</td>
<td>Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 051:187, 056:186, 074:191, 096:283, 174:226, 200:110.</td>
</tr>
<tr>
<td>050:284</td>
<td>Global Cross-Cultural Elective</td>
<td>arr.</td>
<td>Cross-cultural medical program with focus on health care problems of a domestic or international community; individually arranged.</td>
</tr>
<tr>
<td>050:285</td>
<td>Global Health Issues: Domestic Communities</td>
<td>1 s.h.</td>
<td>Domestic health topics that illustrate health care needs of diverse domestic communities.</td>
</tr>
<tr>
<td>050:286</td>
<td>Introduction to U.S. Health Care System</td>
<td>1 s.h.</td>
<td>Structure, function, and finance of U.S. health care system; access, cost, quality, finance mechanisms, reform process.</td>
</tr>
<tr>
<td>050:300</td>
<td>Teaching Skills for Medical Students</td>
<td>4 s.h.</td>
<td>Practical teaching techniques; opportunity for students to develop teaching skills before they become medical residents.</td>
</tr>
<tr>
<td>050:701</td>
<td>Instructional Design and Technology</td>
<td>3 s.h.</td>
<td>Skills and techniques necessary for analysis, design, development, implementation, and evaluation of effective instruction.</td>
</tr>
<tr>
<td>050:702</td>
<td>Clinical Teaching in Medical Education</td>
<td>3 s.h.</td>
<td>Principles and methods for teaching individuals and small groups in outpatient and inpatient settings. Prerequisite: 050:701 or 07P:205. Recommended: educational psychology course.</td>
</tr>
<tr>
<td>050:703</td>
<td>Educational Research and Evaluation</td>
<td>3 s.h.</td>
<td>Research design and program evaluation; approaches relevant to medical education.</td>
</tr>
<tr>
<td>050:711</td>
<td>Teaching Methods in Medical Education</td>
<td>3 s.h.</td>
<td>Principles and methods for teaching in large and small classrooms. Prerequisite: 050:701 or 07P:205. Recommended: educational psychology course.</td>
</tr>
<tr>
<td>050:712</td>
<td>Introduction to Educational Measurement in Medical Education</td>
<td>3 s.h.</td>
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</tbody>
</table>
Classical test theory; overview of medical education assessment methods; practical information for designing and critiquing assessments.

050:713 Assessment in Medical Education 3 s.h.
Medical education assessment methods; research methods and literature that support current practices; research project. Prerequisite: 050:712.

050:714 Current Issues in Medical Education 3 s.h.
Selected issues, policies, and research.

050:720 Portfolio Project 3 s.h.
Production of individual student portfolios used to integrate knowledge across courses; capstone activity. Prerequisite: consent of instructor.

050:721 Study in Faculty Development 3 s.h.
Academic credit for approved project or other assigned activities for students in the Teaching Scholars program.

050:722 Independent Study 3 s.h.
Repeatable.

050:723 Medical Education Project 3 s.h.
Experience working with a faculty mentor to design and implement a curriculum or educational research project.

050:995 Individual Project: Medical History 3 s.h.
Arranged by student with department's approval.

050:999 Special Study Off Campus 3 s.h.

Hospital Certificate Programs

The following courses are conducted by University of Iowa Hospitals and Clinics staff.

670:901 Radiologic Technology I 0 s.h.
Patient care and ethics, radiographic positioning, radiographic critique, medical terminology, radiologic physics, anatomy and physiology, radiographic technique, computer technology, radiation biology, radiographic processing, imaging equipment, quality assurance; supervised clinical education; two-year program; national board examination required at completion.

670:902 Radiologic Technology II 0 s.h.
Prerequisite: 670:901.

671:902 Orthoptics Program 0 s.h.
Clinical science of binocular vision, ocular motility, and related eye disorders; practical, theoretical training in the Department of Ophthalmology and Visual Sciences two-year program; written, oral and practical national board examinations required at completion. Prerequisite: bachelor's degree with specific class recommendations.

672:803 Radiation Therapy I 0-12 s.h.
Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set-up, dosimetry, use of megavoltage radiation-producing equipment to administer treatments. Prerequisites: completion of radiologic technology program and eligibility for registration with a national certification program.

672:804 Radiation Therapy II 0-12 s.h.
Theory and techniques of radiation therapy technology; emphasis on areas of oncology treatment planning, treatment set-up, dosimetry, use of megavoltage radiation-producing equipment to administer treatment; one-year program ending in eligibility for national certification examination in radiation therapy. Prerequisites: 672:803, graduation from an accredited radiography program, and eligibility for registration with a national certification program.

672:805 Radiation Therapy III 0-6 s.h.
Prerequisite: 672:804.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>673:803</td>
<td>Diagnostic Medical Sonography I</td>
<td>0-9 s.h.</td>
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<tr>
<td>673:804</td>
<td>Diagnostic Medical Sonography II</td>
<td>0-9 s.h.</td>
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<tr>
<td></td>
<td>Principles and methods in using ultrasound as an imaging modality; abdomen, obstetrics and gynecology, neurosonography, and vascular technology specialties; 18-month program; national certification required at completion. Prerequisites: 673:803 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, and algebra.</td>
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<tr>
<td>673:805</td>
<td>Diagnostic Medical Sonography III</td>
<td>0-3 s.h.</td>
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<tr>
<td></td>
<td>Prerequisites: 673:804 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.</td>
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<tr>
<td>673:806</td>
<td>Diagnostic Medical Sonography IV</td>
<td>0-9 s.h.</td>
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<tr>
<td></td>
<td>Principles and methods in using ultrasound as an imaging modality; specialties including abdomen, pediatrics, obstetrics, gynecology, interventional procedures, vascular imaging, neurosonography; 18-month program; national certification examination required at completion. Prerequisites: 673:805 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.</td>
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<tr>
<td>673:807</td>
<td>Diagnostic Medical Sonography V</td>
<td>0-6 s.h.</td>
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<tr>
<td></td>
<td>Prerequisites: 673:806 and completion of an allied health program or bachelor's degree with course work in physics, anatomy, patient care, medical technology, and algebra.</td>
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<tr>
<td>673:911</td>
<td>Diagnostic Cardiac Sonography</td>
<td>0 s.h.</td>
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<tr>
<td></td>
<td>Principles, methods in using ultrasound; specialties including adult and stress echocardiography; six-month program; national certification examination required at completion of program. Prerequisite: completion of an accredited medical sonography or vascular technology program.</td>
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<tr>
<td>673:912</td>
<td>Cardiac Sonography Clinical Course</td>
<td>0 s.h.</td>
</tr>
<tr>
<td></td>
<td>Using ultrasound as an imaging modality; specialties, including adult echocardiography, stress echocardiography; six-month program; national certification examination required at completion. Prerequisite: completion of an accredited medical sonography or vascular technology program.</td>
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</tr>
<tr>
<td>674:806</td>
<td>Magnetic Resonance Imaging I</td>
<td>0-12 s.h.</td>
</tr>
<tr>
<td></td>
<td>Procedures and pathophysiology, physics, advanced sectional anatomy, instrumentation, supervised clinical education; nine-month program; national recognition examination recommended at completion. Prerequisite: completion of radiologic technology program.</td>
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<tr>
<td>674:807</td>
<td>Magnetic Resonance Imaging II</td>
<td>0-12 s.h.</td>
</tr>
<tr>
<td></td>
<td>Prerequisites: 674:806 and completion of radiologic technology program.</td>
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<tr>
<td>674:808</td>
<td>Magnetic Resonance Imaging III</td>
<td>0-8 s.h.</td>
</tr>
<tr>
<td></td>
<td>Procedures, pathophysiology, physics, advanced sectional anatomy, instrumentation, supervised clinical education; nine-month program; national recognition examination recommended at completion of program. Prerequisites: 674:807 and completion of radiologic technology program.</td>
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<tr>
<td>674:810</td>
<td>Fundamentals for the MRI Technologist</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Overview of MRI principles and MRI patient care; safety, patient preparation, monitoring, contrast agents, and venipuncture issues related to MRI procedures.</td>
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<tr>
<td>674:820</td>
<td>MRI Procedures I</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>MRI imaging techniques related to central nervous system and musculoskeletal system; clinical applications, coil use, imaging parameters, protocol and positioning criteria. Prerequisite: 676:100 or minimum of 3 months of fulltime CT or MRI clinical work experience. Pre- or corequisites: 674:810 and 674:840.</td>
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<tr>
<td>674:830</td>
<td>MRI Procedures II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>MRI techniques related to thorax, abdomen, and pelvis imaging; clinical applications, coil use, imaging parameters, protocol and positioning criteria. Prerequisite: 674:820.</td>
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</tbody>
</table>
674:840 MRI Acquisition and Principles I
4 s.h.
MRI physics and hardware; instrumentation, magnetism, NMR signal production, tissue characteristics, spatial localization, pulse sequencing, imaging parameters. Pre- or corequisite: 674:810.

674:850 MRI Acquisition and Principles II
4 s.h.
Advanced MRI techniques, including angiography and fast image acquisition sequences; overview of facility design, digital imaging, quality assurance procedures. Prerequisite: 674:840.

674:860 MRI Clinical Internship I
3-6 s.h.
Work with patients in MRI clinical setting; 36 clock hours per week. Prerequisites: 674:810 and pre-acceptance into the MRI Clinical Internship. Pre- or corequisites: 674:820 and 674:840.

674:870 MRI Clinical Internship II
3-6 s.h.
Work with patients in MRI clinical setting; 36 clock hours per week. Prerequisite: 674:860. Pre- or corequisite: 674:840.

675:808 Cardiovascular Interventional I
0-8 s.h.
Imaging equipment, intervention, techniques, digital angiography, vascular anatomy and physiology, pharmacology, sterile techniques, cardiac monitoring; six-month program; national recognition examination recommended at completion. Prerequisite: completion of radiologic technology program.

675:809 Cardiovascular Interventional II
0-7 s.h.
Prerequisites: 675:808 and completion of radiologic technology program.

676:100 Sectional Anatomy for Imaging Sciences
3 s.h.
Sectional anatomy identifiable on computed tomography and magnetic resonance imaging, including transverse, coronal, and sagittal planes.

676:110 Pathology for Imaging Sciences
3 s.h.
Common pathological conditions found on computed tomography and magnetic resonance imaging, including protocol appearance variations. Prerequisite: 676:100 or minimum of 3 months of fulltime CT or MRI clinical work experience.

676:120 Computed Tomography Procedures
5 s.h.
Computed tomography procedures, including positioning techniques, patient preparation, monitoring, and care; indications and contraindications for procedures and contrast media usage. Prerequisite: successful completion of primary ARRT certification in radiologic technology, nuclear medicine, or radiation therapy.

676:130 Computed Tomography Physical Principles and QC
4 s.h.
Computed tomography physics, including principles of data acquisition, image reconstruction and manipulation, image quality, radiation dose, spiral/helical CT, and QC tests for scanners. Prerequisite: successful completion of primary ARRT certification in radiologic technology, nuclear medicine, or radiation therapy.

676:140 Computed Tomography Clinical Internship
6 s.h.
Computed tomography clinical internship completed at University of Iowa Hospitals and Clinics. Prerequisites: successful completion of primary ARRT certification in radiologic technology, nuclear medicine, or radiation therapy; and pre-acceptance into the CT internship. Pre- or corequisites: 676:120 and 676:130.

676:810 Computed Tomography I
0-8 s.h.
Sectional anatomy, procedures and pathology, physics and imaging, introduction to multidetector CT, physiologic and 3-D imaging, CT simulation; six-month program; national recognition examination at recommended completion of program. Prerequisite: completion of radiologic technology program.

676:813 Computed Tomography II
0-7 s.h.
Prerequisites: 676:810 and completion of radiologic technology program.

677:101 Emergency Medical Technician--Paramedic I
0 s.h.
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisite: certification as an emergency medical technician--basic.

677:102 Emergency Medical Technician--Paramedic II
0 s.h.
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisite: 677:101.

**677:103 Emergency Medical Technician--Paramedic III**  
0 s.h.  
Preparation for role of entry-level paramedic: comprehension, application, and evaluation of the clinical role; demonstration of technical proficiency in all required skills; demonstration of personal behaviors consistent with professional and employer expectations. Prerequisite: 677:102.

**678:816 Principles of Quality Management/PACS I**  
0-8 s.h.  
Administrative quality improvement techniques, equipment testing, and management of digital images. First of a two-semester sequence. Prerequisite: American Registry of Radiologic Technologists certification and acceptance to QM/PACS program.

**678:817 Quality Management/PACS II**  
0-7 s.h.  
Quality control data analysis, mammography quality management, research methods; picture, archival, and communications systems administration, implementation, analysis. Second of a two-semester sequence. Prerequisite: 678:816. Recommended: national examination at completion.

**679:915 Principles of Breast Imaging**  
3 s.h.  
Comprehensive treatment of Mammography Quality Standards Act (MQSA) initial training requirements for X-ray technologists. Prerequisite: ARRT certification.
Anatomy and Cell Biology

The Department of Anatomy and Cell Biology performs three major functions. It teaches human anatomy to students preparing for careers in the health care professions; provides advanced courses, teaching experience, and research training to graduate students preparing for careers in academic research and related scientific fields; and conducts original research on the biological basis of cellular functions and human disease processes.

Preclinical Study

The department contributes to the preclinical education of health care professionals by providing major courses in gross anatomy, cell biology, histology, and neuroscience. The department participates in the Carver College of Medicine's Medical Scientist Training Program and the Graduate College's Biosciences, Molecular and Cellular Biology, Immunology, Genetics, and Neuroscience Programs.

Graduate Program

The department offers a Doctor of Philosophy in anatomy and cell biology.

Doctor of Philosophy

The Doctor of Philosophy in anatomy and cell biology requires a minimum of 72 s.h. of graduate credit. Students in the Ph.D. program work toward the doctorate without an intermediate master's degree program. They complete courses focused in one of three major areas--molecular medicine and gene therapy, developmental and stem cell biology, or cancer biology--in addition to related background and elective courses. Students also teach in lecture and laboratory courses under faculty supervision. The program may be completed in four or five years of intensive, full-time residence.

Students interested in pursuing graduate study in anatomy and cell biology spend their first year in the University of Iowa Biosciences Program, where they investigate different disciplines by performing research rotations in three of the program's affiliated laboratories. They also take courses that introduce them to basic principles in the biosciences; participate in the biosciences seminar, where they learn how to evaluate scientific literature critically; and attend departmental seminars.

Students are assigned an advisor to assist in their selection of courses and research rotations during the Biosciences Program year. The curriculum is tailored to fit each student's individual interests. For more detailed information about the program, see Biosciences (Graduate College) in the Catalog.

Students enter the Biosciences Program in fall semester. The following May, after completing three research rotations, each student is expected to select a research laboratory and program affiliation and to begin his or her thesis research project. Students who choose to pursue a Ph.D. in anatomy and cell biology may apply all credit earned in the Biosciences Program toward requirements for the degree.

By the end of their second year of graduate study, anatomy and cell biology students take the comprehensive examination, which assesses their ability to analyze, organize, and apply the information, concepts, and skills acquired during the first two years of study. They define a research problem with their major advisor and formulate a research prospectus.

Subsequent years are devoted primarily to research.

The final Ph.D. examination consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the major advisor and at least four other faculty members on the thesis committee.

Admission

Individuals interested in pursuing a Ph.D. in anatomy and cell biology must apply to and be accepted by the University's Biosciences Program, where they will spend their first year of graduate study. The program accepts applicants with a variety of backgrounds in the biological and physical sciences.
The Biosciences Program has specific admission requirements, including a bachelor's degree and certain undergraduate course work; specific scores on the Graduate Record Examination (GRE) General Test; and for applicants whose first language is not English, specific scores on the Test of English as a Foreign Language (TOEFL). For detailed admission requirements and application information, see Biosciences (Graduate College) in the Catalog.

Admission to the Department of Anatomy and Cell Biology, after completion of the biosciences year, is based on evaluation of each applicant's credentials by the department's faculty. In addition to having met all admission requirements of the Biosciences Program, applicants to the Ph.D. program in anatomy and cell biology must have completed a bachelor's degree with the following undergraduate course work: chemistry through organic chemistry, one semester of biochemistry or the equivalent, one semester of another advanced biology course, mathematics through calculus, one year of physics, and one semester of statistics or the equivalent. Desirable qualifications include an undergraduate major in the biological sciences or chemistry; a master's degree in the biological sciences, chemistry, or a related area; and scores from a GRE Advanced Test in the applicant's major area.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

All students in the Department of Anatomy and Cell Biology receive stipends and tuition support. Sources include training grants from the National Institutes of Health, University of Iowa and departmental fellowships and graduate research assistantships, and individual faculty research grants.

Facilities

The department occupies more than 35,000 square feet in the Bowen Science Building on the health sciences campus. The building houses modern teaching facilities and well-equipped research laboratories. The most modern instrumentation is available, including facilities and equipment for digital microscopic imaging, confocal microscopy, molecular biological techniques, tissue culture, and protein chemistry. Other specialized equipment (e.g., electron microscopes, mass spectrophotometers) is available in other facilities. Through collaborative programs with the Holden Comprehensive Cancer Center and Iowa Cardiovascular Center, faculty and students also have access to outstanding research facilities throughout the University of Iowa health sciences campus.

Anatomy and Cell Biology Courses

060:101 Human Gross Anatomy for Dental Students 6 s.h.
Regional dissection, lectures, demonstrations, with emphasis on head and neck; neuroanatomy. Offered spring semesters. Prerequisite: D.D.S. enrollment.

060:103 Medical Gross Human Anatomy 6 s.h.
Complete dissection of the body with regional emphasis stressing relationships to the living system; clinically relevant areas of radiologic imaging, surface anatomy, embryology, and clinical correlations; anatomical knowledge through lectures, small group work, independent activities. Offered fall semesters. Prerequisite: M.D. enrollment.

060:108 Human Anatomy 5 s.h.
Regional dissection, lectures, demonstrations; areas important to physical therapists, particularly the upper and lower extremities. Offered fall semesters. Prerequisite: Physical Therapy Program enrollment or consent of instructor.

060:109 Human Anatomy Lab for Health Professions 1 s.h.
Regional and systemic approaches to the study of human anatomy, using histological (microscopic) as well as gross (macroscopic) studies. Prerequisite: 002:002. Corequisite: 060:110 for pre-nursing students.

060:110 Principles of Human Anatomy 3 s.h.
Gross and microscopic human anatomy; systemic approach to regional anatomy, with emphasis on clinical relevance; optional tutorial sessions. Offered fall and spring semesters. Prerequisites: 002:010 and 002:011, or equivalents; and pharmacy, pre-nursing, or associated medical sciences major.

060:111 Gross Human Anatomy Physician Assistant Students 6 s.h.
Focused regional dissection with clinical integration through lectures, demonstrations, and tutorials; neuroanatomy, radiology. Offered summer sessions. Prerequisites: Physician Assistant Program or Graduate College or M.D. enrollment, and consent of instructor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>060:112</td>
<td>General Histology for Dental Students</td>
<td>4 s.h.</td>
<td>Microscopic study of cells, fundamental tissues, organ systems; emphasis on tooth-related structures. Offered spring semesters. Prerequisite: D.D.S. enrollment or anatomy and cell biology graduate standing.</td>
</tr>
<tr>
<td>060:113</td>
<td>Human Anatomy Online</td>
<td>4 s.h.</td>
<td>Integrative systemic and regional study of the human body’s structure. Prerequisite: 002:002 or equivalent.</td>
</tr>
<tr>
<td>060:122</td>
<td>Independent Study in Anatomy and Cell Biology</td>
<td>arr.</td>
<td>Projects arranged with department faculty members. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>060:153</td>
<td>Hard Cases: Science Policy and Values</td>
<td>3 s.h.</td>
<td>Major issues in practical ethics through difficult case studies in fields such as law, medicine, business, politics; readings in classic authors; recent contributions from several disciplines. Same as 033:153.</td>
</tr>
<tr>
<td>060:156</td>
<td>Scanning Electron Microscopy and X-Ray Microanalysis</td>
<td>arr.</td>
<td>Microscopy methods for research; all aspects of research, from sample preparation to imaging to data analysis; when to use a particular microscopy procedure; theory, operation, and application of scanning electron microscopy, scanning probe microscopy, laser scanning microscopy, X-ray microanalysis. Prerequisites: a physical science course and consent of instructor. Same as 012:156, 052:156.</td>
</tr>
<tr>
<td>060:200</td>
<td>Special Topics in Genetics</td>
<td>1 s.h.</td>
<td>Current research in a selected field of genetics; different topic each year. Companion to a genetics seminar series. Same as 127:200.</td>
</tr>
<tr>
<td>060:203</td>
<td>Gross Human Anatomy for Graduate Students</td>
<td>6 s.h.</td>
<td>Regional dissection, lectures, demonstrations, tutorials, discussions, seminars; clinically relevant areas of anatomical radiology, surface anatomy with clinical correlations. Prerequisites: anatomy and cell biology graduate standing and consent of instructor.</td>
</tr>
<tr>
<td>060:205</td>
<td>General Histology for Graduate Students</td>
<td>1-4 s.h.</td>
<td>Structure and function of cells, tissues, and organs studied at light and electron microscopic levels. Offered spring semesters. Prerequisites: anatomy and cell biology graduate standing and consent of instructor. Corequisite: 050:240.</td>
</tr>
<tr>
<td>060:207</td>
<td>Human Organ Systems for Graduate Students</td>
<td>8 s.h.</td>
<td>Integration of basic concepts of the physiology and microscopic anatomy of tissues and organ systems, utilizing didactic lectures, small group discussion, and laboratory exercises; emphasis on the relevance of altered morphology and physiology to pathologic processes, at both the light and electron microscopic level. Prerequisites: graduate standing in anatomy and cell biology, and consent of instructor and department head.</td>
</tr>
<tr>
<td>060:208</td>
<td>Current Topics in Anatomy and Cell Biology</td>
<td>2 s.h.</td>
<td>Review of current literature related to a weekly topic, followed by discussion of a journal article. Prerequisite: enrollment in a graduate program.</td>
</tr>
<tr>
<td>060:216</td>
<td>Protein Biogenesis, Transport, and Degradation in the Secretory/Endocytic System</td>
<td>1 s.h.</td>
<td>Models for translocation across the ER membrane, quality control/protein folding in the ER lumen, ER associated degradation; mechanisms of vesicle biogenesis, cargo selection, vesicle fusion, regulation of Golgi and trans-Golgi Network biogenesis; protein internalization from the cell surface. Prerequisite: 099:130 or equivalent. Same as 072:220, 142:220.</td>
</tr>
<tr>
<td>060:218</td>
<td>Microscopy for Biomedical Research</td>
<td>arr.</td>
<td>Preparation, analysis of biomedical projects by light and electron microscopy. Prerequisites: 002:114 and consent of instructor. Same as 061:218.</td>
</tr>
<tr>
<td>060:220</td>
<td>Advanced Microscopy Biomedical Research</td>
<td>arr.</td>
<td></td>
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</tbody>
</table>
Technically advanced microscopy methods for research; individualized laboratory experience with opportunity to explore application of microscopy methods. Prerequisites: (for 060:220) an introductory microscopy course and consent of instructor. Prerequisites: (for 002:220) 002:218 or 060:218 or 061:218, or 012:156 or 052:156 or 060:156 or equivalent, and consent of instructor. Prerequisites: (for 061:220) an introductory EM course and consent of instructor. Same as 002:220, 061:220.

060:221 Control of Subcellular Motility 1 s.h.
Actin filaments and microtubules in terms of their assembly dynamics and regulation; how motor proteins are controlled and adapted for movement of specific proteins and vesicles within cells; signaling through GTPases; cell motility; biogenesis, regulation of cilia and flagella. Prerequisite: 099:130 or equivalent. Same as 072:221, 142:221.

060:222 Organelle Biogenesis 1 s.h.
Biogenesis of mitochondria, peroxisomes, nucleus, and phagosomes; membrane trafficking; mitochondrial division, mitosis and cell division, entry into lysosomes via autophagy and endocytic pathways; host/pathogen interactions, function of macrophages and neutrophils. Prerequisite: 099:130 or equivalent. Same as 072:222, 142:222.

060:223 Cellular Differentiation and Stem Cell Biology 1 s.h.
Cellular death and survival, mechanisms of cellular differentiation, stem cell biology, cellular transformation, epithelial/mesenchymal cell transition, tumor stem cells. Prerequisite: 156:201 or consent of instructor. Same as 072:227, 142:227.

060:224 Graduate Student Seminar 0-1 s.h.
Current research, literature. Prerequisite: anatomy and cell biology graduate standing.

060:225 Growth Factor Receptor Signaling 1 s.h.
Basic mechanisms of growth factor receptor protein tyrosine kinase (PTK) signaling, Ras protein signaling, angiogenic growth factors and receptors. Prerequisite: 156:201 or consent of instructor. Same as 072:225, 142:225.

060:226 Cell Cycle Control 1 s.h.
Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Prerequisite: 156:201 or consent of instructor. Same as 072:226, 142:226.

060:227 Anatomic Study for Teaching 2-3 s.h.
Experience completing a detailed dissection of a region of the human body; opportunity to create models depicting anatomical concepts. Prerequisite: enrollment in teaching certificate program.

060:228 Seminar in the Anatomical Sciences 1 s.h.
Discussion of published articles relevant to issues in teaching anatomical science. Prerequisite: enrollment in teaching certificate program.

060:229 Applications in Teaching Biomedical Science 1 s.h.
Participation in student-focused active learning experiences; may include lecture, discussion, video, reading. Prerequisite: enrollment in teaching certificate program.

060:230 Molecular Basis Vertebrate Development 2 s.h.
Fundamentals of human embryology, concepts in developmental biology; current literature. Offered fall semesters of odd years. Prerequisite: graduate standing or consent of instructor.

060:232 Advanced Human Anatomy arr.
Regional dissection of the body with emphasis on systems relevant to student's specialty interests; discussion, reading, clinically relevant imaging, embryology. Offered spring semesters. Prerequisites: fourth-year M.D. enrollment or graduate standing, and consent of supervising faculty member.

060:234 Medical Neuroscience 4 s.h.
Basic principles of neurophysiology, neuroanatomy; emphasis on human central nervous system; laboratory emphasis on anatomical study of spinal cord, brain. Offered spring semesters. Prerequisite: (for 132:234) consent of course director. Prerequisite: (for 060:234) M.D. or Physical Therapy and Rehabilitation Science Program enrollment or consent of course director. Same as 132:234.

060:265 Neuroscience Seminar 0-1 s.h.

060:270 Human Anatomy, Physiology, Pathophysiology, and Assessment for Advanced Practice Nursing

Interrelationships between anatomic structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 096:270.
Anesthesiology

Head: Michael M. Todd
Professors emeriti: Mohamed Ghoneim, Peter J.R. Jebson, Martin Sokoll
Associate professor emeritus: James G. Carter
Web site: http://www.anesth.uiowa.edu

M.D. Student Training

The Department of Anesthesiology introduces second-year medical students to anesthesia as a specialty; helps third-year students develop concepts and technical skills related to resuscitation, airway management, and care of the unconscious patient; and offers fourth-year students intensive study in the specialty. It offers the following courses for medical students. For course descriptions and prerequisite information, see "Courses" below.

116:006 Clinical Anesthesia (required) 2 s.h.
116:010 Clinical Anesthesia Senior arr.
116:011 Intensive Care arr.
116:333 Intensive Care off Campus arr.
116:998 Anesthesia on Campus arr.
116:999 Anesthesia off Campus arr.

Postgraduate and Residency Program

Diverse clinical experiences, seminars and teaching conferences, and ongoing research activities help postgraduate students and residents develop the knowledge and skills required of an anesthesia specialist.

Anesthesia Nursing Program

The department coordinates the Anesthesia Nursing Program, a collaboration between the Carver College of Medicine and the College of Nursing. The program, open to nurses who hold a bachelor's degree, prepares nurse anesthetists to serve rural hospitals in Iowa and nationwide. The curriculum provides intensive training in didactic and clinical anesthesia and includes diverse clinical experience as well as classroom instruction, seminars, and clinical case conferences. It includes the following courses. For course descriptions and prerequisite information, see "Courses" below.

116:271 Chemical and Physical Principles of Anesthesia Practice 3 s.h.
116:272 Pharmacology of Anesthesia Practice I 3 s.h.
116:273 Pharmacology of Anesthesia Practice II 2 s.h.
116:274 Basic Principles of Anesthesia Practice 5 s.h.
116:275 Advanced Principles of Anesthesia Practice I 2 s.h.
116:276 Advanced Principles of Anesthesia Practice II 2 s.h.
116:277 Advanced Principles Anesthesia Practice III 1 s.h.
116:278 Professional Aspects of Anesthesia Nursing Practice 2 s.h.
116:279 Equipment and Technological Principles of Anesthesia Practice 3 s.h.
116:287 Pharmacology of Anesthesia Practice III 2 s.h.
116:290 Introductory Clinical Anesthesia 1 s.h.
116:291 Clinical Anesthesia I 1 s.h.
116:292 Clinical Anesthesia II 1 s.h.
116:293 Advanced Clinical Anesthesia 1 s.h.
116:294 Obstetrical Anesthesia 1 s.h.
116:295 Rural Anesthesia 1 s.h.
Anesthesiology Courses

For M.D. Students

116:006 Clinical Anesthesia 2 s.h.
Clinical instruction in perioperative care of the surgical patient; preoperative evaluation, consideration of coexisting medical problems, intraoperative care, postoperative management; basic airway management; introduction to clinical management of acute and chronic pain; case conferences, simulator training.

116:010 Clinical Anesthesia Senior arr.
Advanced clinical experience in anesthesia management of surgical patients with coexisting medical problems; clinical experience in various forms of anesthesia; general, regional (spinal, epidural, peripheral nerve block) anesthesia; practical experience in airway management; mask ventilation, endotracheal intubation, LMA placement, other alternative airway techniques; medical management of surgical patient under anesthesia; pharmacology, cardiovascular and pulmonary physiology; case conferences.

116:011 Intensive Care arr.
Evaluation, treatment of seriously ill patients in intensive care; ventilator management, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques.

116:333 Intensive Care off Campus arr.
Evaluation and treatment of seriously ill patients in an intensive care unit (other than University of Iowa Hospitals and Clinics); artificial ventilation, evaluation of pulmonary function, monitoring of cardiovascular status, fluid balance and acid base problems, advance monitoring techniques. Prerequisites: 4 s.h. of 116:010 and consent of program director.

116:998 Anesthesia on Campus arr.
Well defined research project relating to anesthesia; arranged by student with departmental approval.

116:999 Anesthesia off Campus arr.
Knowledge development in anesthesia work and monitor use; ability to identify respiratory, cardiovascular, and neurologic effects of anesthetic agents; skill in airway management; basic skills in general, spinal, epidural, and peripheral nerve block anesthesia.

For Anesthesia Nursing Students

116:271 Chemical and Physical Principles of Anesthesia Practice 3 s.h.
Chemistry and physics, as applied to anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 096:271.

116:272 Pharmacology of Anesthesia Practice I 3 s.h.
Mechanism and action of drugs; focus on pharmacotherapeutic principles, including pharmacokinetics, pharmacodynamics, receptor binding, cell signaling; principles of uptake, distribution, elimination of anesthetic and adjunctive agents. Prerequisites: grade of 2.67 or higher in 096:271 or 116:271, and admission to anesthesia nursing program; or consent of instructor. Same as 096:272.

116:273 Pharmacology of Anesthesia Practice II 2 s.h.
Continuation of 096:272 or 116:272; vascular, hepatic, renal, GI, endocrine aspects; cellular mechanisms, electrolytes alterations. Prerequisites: grade of 2.67 or higher in 096:272 or 116:272, and admission to anesthesia nursing program; or consent of instructor. Same as 096:273.

116:274 Basic Principles of Anesthesia Practice 5 s.h.
Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Prerequisite: (for 096:274) grade of 2.67 or higher in 096:272, or corequisite enrollment in 096:273, or consent of instructor. Prerequisite (for 116:274): grade of 2.67 or higher in 116:272 or consent of instructor. Corequisite: (for 116:274) 116:273. Same as 096:274.
116:275 Advanced Principles of Anesthesia Practice I
Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273, and 096:274 or 116:274; or consent of instructor. Same as 096:275.

116:276 Advanced Principles of Anesthesia Practice II
Special needs and intraoperative management of patients in cardiac, vascular, thoracic, and other surgical specialties; focus on altered pathophysiology, anesthetic requirements; strategies for special surgical situations. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273, and 096:274 or 116:274; or consent of instructor. Same as 096:276.

116:277 Advanced Principles Anesthesia Practice III
Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273, and 096:274 or 116:274; or consent of instructor. Same as 096:277.

116:278 Professional Aspects of Anesthesia Nursing Practice
Issues in contemporary anesthesia nursing practice: historical development; ethical, legal, and political aspects; evaluation; quality management; responsibilities; career expectations and development; role of professional organization. Prerequisite: anesthesia nursing program enrollment. Same as 096:278.

116:279 Equipment and Technological Principles of Anesthesia Practice
Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for use, safe operation, care, and cleaning of anesthesia-related equipment. Prerequisites: 116:271 and anesthesia nursing program enrollment. Same as 096:279.

116:287 Pharmacology of Anesthesia Practice III
Drugs specific to various specialty areas: tocolytics, vasoactive and cardioactive agents, drugs that alter clotting, chronic pain therapy agents. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273 or consent of instructor, and anesthesia nursing program enrollment. Same as 096:287.

116:290 Introductory Clinical Anesthesia
Initial anesthesia preceptorship; development of basic clinical skills for work as a nurse anesthetist. Prerequisites: basic science core courses and anesthesia nursing program enrollment. Same as 096:290.

116:291 Clinical Anesthesia I
Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, EENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: 096:290 or 116:290, and anesthesia nursing program enrollment. Same as 096:291.

116:292 Clinical Anesthesia II

116:293 Advanced Clinical Anesthesia
Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Prerequisites: (for 096:293 and 116:293) anesthesia nursing concentration courses and g.p.a. of 2.67 or higher. Prerequisite: (for 096:293) anesthesia nursing program senior standing. Prerequisite: (for 116:293) anesthesia nursing program enrollment. Same as 096:293.

116:294 Obstetrical Anesthesia
Experience providing anesthesia for the parturient, initial neonatal care; two one-month rotations off campus. Prerequisite: (for 096:294) anesthesia nursing program enrollment. Prerequisites: (for 116:294) anesthesia nursing courses and anesthesia nursing program enrollment. Same as 096:294.

116:295 Rural Anesthesia
Anesthesia experience in community hospitals; three one-month rotations at UI-affiliated clinical sites in rural Iowa. Prerequisite: (096:295) anesthesia nursing program enrollment. Prerequisites: (for 116:295) anesthesia nursing program enrollment and courses. Same as 096:295.
Biochemistry

Biochemistry is the study of the basic chemical processes that occur in all living systems. It is one of the most active sciences, and it provides a foundation for other biosciences.

Biochemists generally work in laboratories and/or classrooms. Those with a bachelor's degree are often employed as research assistants in industry, government, education, and health service, or in secondary school teaching, for which licensure is required.

Biochemists with advanced degrees--usually a doctorate--pursue teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, government laboratories, biotechnology companies, and in food, drug, cosmetics, chemical, petroleum, and allied industries.

The Department of Biochemistry offers degree programs for undergraduates and for graduate students and administers the academic curriculum at both levels. The College of Liberal Arts and Sciences grants undergraduate degrees in biochemistry and oversees undergraduate academic policy relating to the student record. The Graduate College grants graduate degrees in biochemistry.

Undergraduate Programs

The Department of Biochemistry offers a Bachelor of Science and a Bachelor of Arts in biochemistry.

Students choose advanced science electives to supplement biochemical studies or to satisfy requirements of a double major or a minor in another discipline. In order to count science electives numbered below 100 toward a degree in biochemistry, students must have their advisor's approval.

Transfer credit for biochemistry courses requires the approval of an undergraduate advisor in biochemistry.

Students, especially those in the B.A. program, may include courses from other disciplines, such as business, pre-law, psychology, or journalism. This prepares them for one of the many vocations on which biochemistry has an impact.

Bachelor of Science

The Bachelor of Science in biochemistry requires a total of 120 s.h., including 73 s.h. of work for the major. The program prepares students to work in positions that require a mastery of general biochemistry. It is also excellent preparation for graduate study in biochemistry and related sciences or for study toward a professional degree in the health sciences.

The B.S. major in biochemistry requires the following course work. Biochemistry students also must complete the College of Liberal Arts and Sciences General Education Program.

All of these:

002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
029:081-029:082 Introductory Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.
099:155 Research, Independent Study (required of all honors students) 6 s.h.
Advanced science electives, chosen in consultation with advisor 9 s.h.

One of these sequences:
004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I for Majors - Organic Chemistry II for Majors (preferred) 6 s.h.

Two of these:
004:131 Physical Chemistry I 3 s.h.
004:132 Physical Chemistry II 3 s.h.
099:241 Biophysical Chemistry I 3 s.h.
099:242 Biophysical Chemistry II 3 s.h.

One of these:
004:141 Organic Chemistry Laboratory 3 s.h.
004:142 Organic Chemistry Laboratory for Majors (preferred) 3 s.h.

Students may register for 099:155 Research, Independent Study only if they have earned an average grade of B or higher in 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry and a grade of B-minus or higher in each 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry; or have consent of advisor and instructor. Students may register for 099:115 Undergraduate Independent Study any time.

Students are encouraged to begin research by taking 099:115 Undergraduate Independent Study (may be taken for a total of 6 s.h.). There are no prerequisites. Students may arrange independently to take this course, or they may request assistance from an undergraduate advisor.

**Bachelor of Arts**

The Bachelor of Arts in biochemistry requires a total of 120 s.h., including 58 s.h. of work for the major. The B.A. major requires the following course work. Biochemistry students also must complete the College of Liberal Arts and Sciences General Education Program.

All of these:
002:010-002:011 Principles of Biology I-II 8 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.
22M:025-22M:026 Calculus I-II 8 s.h.
029:011-029:012 College Physics I-II 8 s.h.
099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
099:101 Technical Communication in Biochemistry 1 s.h.
099:120 Biochemistry and Molecular Biology I 3 s.h.
099:130 Biochemistry and Molecular Biology II 3 s.h.
099:140 Experimental Biochemistry 4 s.h.
Advanced science electives, chosen in consultation with advisor 6 s.h.

One of these sequences:
004:121-004:122 Organic Chemistry I-II 6 s.h.
004:123-004:124 Organic Chemistry I for Majors - Organic Chemistry II for Majors (preferred) 6 s.h.

One of these:
004:131 Physical Chemistry I 3 s.h.
004:132 Physical Chemistry II 3 s.h.
099:241 Biophysical Chemistry I 3 s.h.
099:242 Biophysical Chemistry II 3 s.h.

In addition, B.A. students intending to go on to advanced degrees in the biological or health sciences are advised to include 4 s.h. or more of 099:115 Undergraduate Independent Study or 099:155 Research, Independent Study (senior research) in their programs.

**B.A. or B.S. with Teacher Licensure**
Biochemistry majors, especially those in the B.A. program, may qualify for teacher licensure by taking additional courses in teacher education. Consult the College of Education for details.

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

Bachelor of Science

Before the third semester begins: 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II, 22M:025 Calculus I, 099:001 Orientation and Introduction to the Field of Biochemistry, and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 Principles of Biology I and 002:011 Principles of Biology II; 004:121 Organic Chemistry I, 004:122 Organic Chemistry II, and 004:141 Organic Chemistry Laboratory; 22M:026 Calculus II; and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:081 Introductory Physics I and 029:082 Introductory Physics II, 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry; two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 Physical Chemistry I or 004:132 Physical Chemistry II or 099:241 Biophysical Chemistry I or 099:242 Biophysical Chemistry II, a science elective, and at least 3 s.h. of 099:155 Research, Independent Study

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Bachelor of Arts

Before the third semester begins: 004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II; math through 22M:026 Calculus II or above; 099:001 Orientation and Introduction to the Field of Biochemistry; and at least one-quarter of the semester hours required for graduation

Before the fifth semester begins: the courses listed above, plus 002:010 Principles of Biology I and 002:011 Principles of Biology II, 004:121 Organic Chemistry I and 004:122 Organic Chemistry II, and at least one-half of the semester hours required for graduation

Before the seventh semester begins: the courses listed above, plus 029:011 College Physics I and 029:012 College Physics II, 099:120 Biochemistry and Molecular Biology I, 099:130 Biochemistry and Molecular Biology II, and 099:140 Experimental Biochemistry, two science electives, and at least three-quarters of the semester hours required for graduation

Before the eighth semester begins: the courses listed above, plus 004:131 Physical Chemistry I or 004:132 Physical Chemistry II or 099:241 Biophysical Chemistry I or 099:242 Biophysical Chemistry II, a science elective

During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors

Qualified students may earn an honors degree in biochemistry. They must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 (contact the University of Iowa Honors Program for more information). Honors students in biochemistry must complete 099:155 Research, Independent Study. They must present their research results in a report written in the form of a journal article and in an oral report presented at a special open departmental seminar.

Graduate Program

The Department of Biochemistry offers a Master of Science and a Doctor of Philosophy in biochemistry. Students admitted to the graduate program usually pursue the Ph.D. Qualified students may pursue a combined program leading to the M.D./Ph.D. (Medical Scientist Training Program).

Master of Science
The Master of Science in biochemistry requires a minimum of 30 s.h. of graduate credit, thesis research, and a thesis. See "Doctor of Philosophy" for information about the graduate curriculum.

**Doctor of Philosophy**

The Doctor of Philosophy in biochemistry requires a minimum of 72 s.h. of graduate credit. The focus of the graduate program is on the individual student. Students choose from three curricula to satisfy requirements for the degree: standard, biophysical emphasis, or molecular emphasis.

In the first year, students engage in formal course work and tutorial laboratory experiences that serve as the basis for selecting a topic for thesis research. They spend half of their time in courses and the other half working in four different faculty laboratories (099:261 Research Techniques), where they learn in the context of ongoing research.

All biochemistry graduate students take the following courses.

- 099:282 Seminar 0-1 s.h.
- 156:201 Fundamentals of Gene Expression 1 s.h.

Standard curriculum students also take the following.

- 099:241-099:242 Biophysical Chemistry I-II 6 s.h.
- 142:215 Transcription and Multifunctional Regulation by RNA 1 s.h.
- Electives 6 s.h.

Biophysical emphasis students also take the following.

- 099:241-099:242 Biophysical Chemistry I-II 6 s.h.
- Electives 9 s.h.

Molecular emphasis students also take the following.

- 099:241 Biophysical Chemistry I 3 s.h.
- or 099:242 Biophysical Chemistry II 3 s.h.
- 142:215 Transcription and Multifunctional Regulation by RNA 1 s.h.
- Electives 9 s.h.

Once students are promoted to the second year of study, they choose research laboratories for Ph.D. thesis research and begin their thesis projects. They take courses that supplement their interests and preparation, including the following.

- 099:237 Topics in Biochemistry and Molecular Biology (at least 1 s.h.) 1-2 s.h.
- 099:238 Topics in Biophysical Chemistry (at least 1 s.h.) 1-2 s.h.
- 099:282 Seminar 0-1 s.h.
- 650:270 Principles of Scholarly Integrity 1 s.h.

Research Biochemistry (099:292) and elective science courses numbered 100 or above in other departments satisfy the remaining course requirements.

Students take the comprehensive examination before the end of June in their second year, after which they are admitted formally to degree candidacy and begin to concentrate on thesis research. The program culminates in successful defense of completed thesis work before an examining committee.

In addition to meeting these requirements and those of the Graduate College, students are expected, as part of their training, to assist in teaching biochemistry for two semesters.

Throughout the program, students are associated with faculty-directed research groups. They receive close personal attention from the biochemistry faculty members who serve as research advisors.

**Admission**

The graduate program in biochemistry is flexible enough to accommodate students with bachelor's degrees in any of
the biological, biochemical, or physical sciences. Appropriate preparation includes one-year, college-level courses in organic and physical chemistry, biology, physics, and mathematics through calculus. Students are expected to have had one or more introductory courses in biochemistry.

Applicants must have an undergraduate g.p.a. of at least 3.00 and must submit acceptable verbal, quantitative, and analytical scores on the Graduate Record Examination (GRE) General Test. Applicants are encouraged to submit their scores on the GRE Subject Test in Chemistry; Biology; or Biochemistry, Cell, and Molecular Biology.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Financial Support

Students admitted to the Ph.D. program in biochemistry routinely receive a stipend and tuition support.

Research

The department's current research interests include protein structure and function, protein folding, DNA bending, complex carbohydrate structure and function, chromatin, regulation of gene expression, mechanisms of transcription and replication, enzyme reaction mechanisms, intracellular signaling, differentiation, and membrane determinants of cell shape and motility. Visit the Department of Biochemistry web site for details.

Facilities

The Department of Biochemistry is located on the University of Iowa health sciences campus, where it has administrative, research, and teaching facilities in the Bowen Science Building. Departmental research groups also are located in the adjacent Medical Education and Research Facility, the Eckstein Medical Research Building, and in other research facilities.

The University of Iowa maintains a number of central research support facilities and equipment that promote campuswide interactions between research groups. These include the facilities for electron and confocal microscopy, fermentation, image analysis, high field NMR, high resolution mass spectrometry, and academic computing (through Information Technology Services). Carver College of Medicine research facilities are available to biochemistry researchers for nuclear magnetic resonance spectroscopy, flow cytometry, DNA synthesis, tissue culture hybridoma, gene transfer, X-ray crystallography analysis, and transgenic and gene targeting.

Individual faculty research laboratories are well-equipped for modern research, and there are many common-use laboratories, including instrument rooms, a reading room, cold rooms, tissue culture areas, preparation rooms, and a stockroom. Research is supported by office staff, stockroom supervisors, and a purchasing agent.

Together, the department and the central support facilities provide virtually all of the equipment required for modern biochemical research. Examples of such equipment include analytical and preparative ultracentrifuges; fluorescence, optical rotatory dispersion, high-field NMR, and rapid kinetic instruments; tissue culture rooms, gas chromatographs, preparative high performance liquid chromatographs, liquid scintillation counters, electrophoresis equipment, instrumentation for protein X-ray crystallography and microcalorimetry, automated DNA sequencers, and facilities for microarray analysis.

The department maintains a reading room stocked with primary books and journals used by biochemists. The Hardin Library for the Health Sciences is a large, complete library located on the health sciences campus. Excellent resources also are provided by branches of the University of Iowa Libraries and by computer access to bibliographic retrieval services.

Biochemistry Courses

099:001 Orientation and Introduction to the Field of Biochemistry 0 s.h.
Biochemistry and its application to other areas of basic sciences; biochemical studies, research, careers.

099:101 Technical Communication in Biochemistry 1 s.h.
Practical aspects of writing formal scientific papers and giving oral presentations on technical topics. Prerequisites: 099:120 or 099:130 or 099:140 or consent of instructor; and senior standing.

099:110 Biochemistry 3 s.h.
Basic concepts in modern biochemistry and molecular biology; understanding of life processes in molecular terms. Prerequisites: one year each of college-level biology and chemistry. Recommended: one semester of organic chemistry.

**099:115 Undergraduate Independent Study**
Experience in an active biochemistry research lab, learning and performing experiments relevant to the current projects in that lab; exploration of scientific literature on topic of interest; arranged in advance by student and faculty member. Prerequisite: first-year, sophomore, or junior standing.

**099:120 Biochemistry and Molecular Biology I**
Physical and chemical foundations of biochemistry, structure of biological molecules, catalysis, transport, and oxidative reactions in biology; first course of two-semester sequence that concludes with 099:130. Prerequisites: two semesters of general chemistry and one of organic chemistry. Recommended: 002:010, 002:011, and an additional organic chemistry course.

**099:130 Biochemistry and Molecular Biology II**
Carbohydrate biosynthesis, lipid metabolism, hormone regulation and integration of metabolism, signal transduction, genes and chromosomes, DNA replication and repair, transcription, RNA processing, protein translation and regulation of gene expression. Prerequisite: 099:120.

**099:140 Experimental Biochemistry**
Use of modern instruments and techniques to fractionate, identify, and characterize constituents of biochemical systems. Prerequisites: two semesters of general chemistry, one semester of organic chemistry, and 099:120.

**099:155 Research, Independent Study**
Independent study and research in areas of interest to the student; arranged in advance by student and biochemistry honors advisor. Prerequisites: grade of B- or higher in 099:120, 099:130, and 099:140, and g.p.a. of B or higher in all three courses.

**099:161 Biochemistry for Dental Students**
Biochemical concepts and application to clinical problems. Prerequisites: 004:121 or consent of instructor, and D.D.S. enrollment or consent of instructor. Recommended: 004:122.

**099:162 Biochemistry for Pharmacy Students**
Biochemical concepts and application to clinical problems. Prerequisites: 004:121 and Pharm.D. enrollment, or consent of instructor. Recommended: 004:122.

**099:163 Medical Biochemistry**
Biochemical concepts and application to clinical problems. Prerequisite: M.D. enrollment.

**099:164 Biochemistry for Physician Assistant Students**
Aspects of general biochemistry necessary for understanding the biochemical basis of human disease; analysis of appropriate clinical cases. Prerequisite: 099:110 or equivalent biochemistry survey.

**099:226 Enzyme Kinetics and Bioorganic Mechanisms**
Principles and applications of steady-state and transient enzyme kinetics; mechanisms of catalysis of biochemical reactions. Prerequisite: 099:120 or consent of instructor.

**099:237 Topics in Biochemistry and Molecular Biology**
Current topics in transcriptional regulation, chromatin structure and function, cell signaling pathways, regulation of development, molecular mechanisms of disease. Repeatable. Prerequisite: 156:201 or consent of instructor.

**099:238 Topics in Biophysical Chemistry**
Current topics in structure and function of membranes or proteins; DNA-protein interactions; computational biochemistry; applications of NMR, X-ray diffraction, calorimetry, or spectroscopy. Repeatable. Prerequisite: 099:241 or 099:242 or consent of instructor.

**099:241 Biophysical Chemistry I**
Experimental and theoretical techniques used to study structure and function of biological macromolecules; UV/Vis absorbance, circular dichroism, and fluorescence spectroscopies; X-ray crystallography of proteins, ultracentrifugation; application of thermodynamics to understand protein folding and protein-ligand binding. Prerequisites: one year of biochemistry and consent of instructor. Recommended: physical chemistry course.

099:242 Biophysical Chemistry II
Enzyme kinetics and mechanisms, macromolecular interactions and dynamics, NMR spectroscopy.

099:243 Introduction to Biophysical Chemistry
Overview of basic principles and practices of biophysical chemistry; biophysical approaches to studying proteins and nucleic acids; critical evaluation of structural models derived from X-ray crystallography and NMR, quantification of molecular interactions; taken alone or as part of 099:241. Prerequisite: introductory course in biochemistry or equivalent.

099:245 Protein Stability, Folding, and Dynamics
In-depth examination of protein stability as well as thermodynamics and kinetics of protein folding; statistical thermodynamics, the physical chemistry of biomolecular interactions, experimental approaches to measuring protein stability, protein folding kinetics, molecular dynamics simulations, protein structural predictions; taken alone or as part of 099:241. Prerequisites: introductory course in biochemistry or equivalent.

099:246 Structure and Mechanism of Membrane Proteins
Overview of membrane proteins; basic principles of membrane proteins, including structure and lipid compositions of cell membranes, membrane protein folding and stability, methods of membrane proteins production, general techniques to study structure and function of membrane proteins; structure and function of biologically significant membrane transporters and receptors. Prerequisite: one year of biochemistry.

099:247 Binding and Macromolecular Interactions
In-depth examination of principles and practices of studying ligand binding and macromolecular interactions; experimental approaches to study interactions with small molecules, proteins, and nucleic acids; approaches to analyze binding data; structural basis of protein/protein and protein/nucleic acid interactions; taken alone or as part of 099:241. Prerequisites: introductory course in biochemistry or equivalent, and one semester of calculus.

099:248 NMR of Biological Macromolecules
Basic principles of NMR and applications important for the understanding of structure and function of biological macromolecules; emphasis on methodology and experimental design, interpretation of data, and critical reading of literature; intended for advanced undergraduates and graduate students with an interest in applications of nuclear magnetic resonance (NMR) to problems of structural biology. Prerequisites: one year of biochemistry and one semester of calculus. Recommended: a basic knowledge of biochemistry, spectroscopy, and some previous exposure to NMR from basic chemistry courses.

099:261 Research Techniques
Laboratory rotation for first-year graduate students in biochemistry.

099:275 Perspectives in Biocatalysis

099:282 Seminar
How to evaluate reports of scientific investigations critically; techniques for presenting scientific information.

099:283 Thesis Seminar
Preparation and oral presentation of thesis proposal. Prerequisite: second-year graduate standing in biochemistry or consent of instructor.

099:292 Research Biochemistry
Thesis research.
Cardiothoracic Surgery

Head: Mark D. Iannettoni
Professors: Mark Iannettoni, Wayne Richenbacher
Associate professor: James Davis
Assistant professors: Domenico Calcaterra, R. Saeid Farivar, David Helman, William Lynch, Kalpaj Parekh, Randy Stevens

The University of Iowa cardiothoracic surgery program is the third oldest program of its kind in the United States. Since its establishment in 1948 as the Division of Cardiothoracic Surgery, the program has advanced from providing operative interventions for patients with diseases of the chest to performing a broad range of the most current and innovative surgical procedures.

The Department of Cardiothoracic Surgery's facilities are located at University of Iowa Hospitals and Clinics. Each year cardiothoracic surgeons at the hospitals perform more than 500 adult and pediatric heart surgeries, including coronary bypasses, transplants, and placement of mechanical cardiac assist devices; minimally invasive procedures such as mitral valve replacement and epicardial lead placement; and more than 600 general thoracic surgeries with emphasis on esophageal and lung diseases. Preparations are under way for providing coronary artery bypass grafting using robotics.

M.D. Student Training


Residency Program

Iowa’s cardiothoracic surgery residency program was established in 1948 and is fully accredited by the Accreditation Council for Graduate Medical Education. It is the only cardiothoracic surgery training program in Iowa. Two residents are accepted into the two-year program each year.

Postbaccalaureate Training

The department plays a primary instructional role in University of Iowa Hospitals and Clinics' 20-month postbaccalaureate Perfusion Technology Program; see the department's perfusion technology courses (193:161 through 193:171) under "Courses" later in this section. For more information about the Perfusion Technology Program, contact the Department of Cardiothoracic Surgery or visit the Perfusion Technology Program web site.

Research

University of Iowa cardiothoracic surgeons are leaders in clinical research, particularly in oncologic surgery, diseases of the esophagus, artificial organs, pediatric cardiac surgery, and transplantation. Research also is under way in the sequence of mutations and in localization of genes predisposed to cancer.

Facilities

The Department of Cardiothoracic Surgery has specialty laboratories in gastric motility, analytical chemistry, transplantation, tissue culture, surgical bacteriology, shock, and cardiac bypass. These facilities permit study of experimental procedures such as heart valve replacement in large animals and heterotopic heart transplantation in mice and rats.

The laboratories also are used for supervised teaching exercises in surgical technique for medical students and junior residents, and for refinement of techniques for senior residents and faculty members.

Cardiothoracic Surgery Courses

193:161 Instrumentation in Perfusion Technology
3 s.h.
Electrical circuitry, filters, pressure transducers, thermistors, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Prerequisite: Perfusion Technology Program enrollment.

193:162 Pathophysiology of Perfusion Technology
5 s.h.
Hemostasis, acid base physiology, gas transfer, heart anatomy, heart embryology, congenital cardiac defects. Prerequisite: Perfusion Technology Program enrollment.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>193:163</td>
<td>Clinical Experience I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Prerequisite: Perfusion Technology Program enrollment.</td>
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</tr>
<tr>
<td>193:164</td>
<td>Clinical Experience II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>193:165</td>
<td>Clinical Experience III</td>
<td>12 s.h.</td>
</tr>
<tr>
<td>193:166</td>
<td>Clinical Experience IV</td>
<td>12 s.h.</td>
</tr>
<tr>
<td></td>
<td>Continuation of 193:165; emphasis on supply maintenance, perfusion department management. Prerequisite: 193:165.</td>
<td></td>
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<tr>
<td>193:167</td>
<td>Perfusion Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Ethics in perfusion. Prerequisite: Perfusion Technology Program enrollment.</td>
<td></td>
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<tr>
<td>193:168</td>
<td>Research in Perfusion</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>From topic selection to manuscript. Prerequisite: Perfusion Technology Program enrollment.</td>
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</tr>
<tr>
<td>193:169</td>
<td>Clinical Experience V</td>
<td>12 s.h.</td>
</tr>
<tr>
<td></td>
<td>Continuation of 193:166. Prerequisite: 193:166.</td>
<td></td>
</tr>
<tr>
<td>193:170</td>
<td>Principle and Practice of Perfusion Technology</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>193:171</td>
<td>Devices in Perfusion Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients.</td>
<td></td>
</tr>
<tr>
<td></td>
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</tbody>
</table>
Clinical laboratory scientists and medical technologists perform the laboratory tests that provide physicians with information vital for accurate diagnosis and proper treatment of disease. They are in demand in hospital, private, and government laboratories; clinics; physicians’ offices; and industrial, pharmaceutical, biological, and environmental research laboratories. Clinical laboratory scientists and medical technologists are highly skilled health team members who use a battery of sophisticated procedures and instruments in their work and who possess specialized knowledge and skills acquired through completion of a formal program of academic and clinical study.

Undergraduate Program

The Carver College of Medicine offers a Bachelor of Science in clinical laboratory sciences through a partnership with the University of Nebraska Medical Center (UNMC). The UNMC program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences. All graduates are eligible for national certification examinations in clinical laboratory sciences and medical technology.

Undergraduate study in the college is guided by the academic rules and procedures outlined in the Carver College of Medicine section of the Catalog, under "Undergraduate Programs."

Bachelor of Science

The Bachelor of Science in clinical laboratory sciences requires a minimum of 131 s.h., including 86 s.h. of preparatory study and the 45 s.h. professional (clinical) program, which consists of 12 months of didactic and practical instruction and clinical rotations.

Bachelor of Science students who have completed all preparatory study (years one through three) begin the fourth-year professional program in May with an 11-week summer session of lecture and student laboratory courses. In mid-August they begin clinical rotations in the laboratories of University of Iowa Hospitals and Clinics, the University Hygienic Laboratory, and the Iowa City Veterans Affairs Medical Center. They also complete additional University of Nebraska Medical Center course work online during fall and spring. Students complete the program the first week in May.

University of Iowa students who successfully complete the 12-month professional program graduate with a Bachelor of Science from The University of Iowa and a letter of completion from the UNMC clinical laboratory sciences program.

Non-University of Iowa students may enroll in a clinical laboratory sciences certificate-only program if they hold a baccalaureate degree from an accredited institution of higher education or are enrolled at an affiliated institution that will grant them a baccalaureate at the completion of the certificate program. Contact the Clinical Laboratory Sciences Program for more information.

FOURTH YEAR (PROFESSIONAL PROGRAM)

The professional program requires the following course work. Students must have completed 86 s.h., including all prerequisites (see "Admission" below), in order to enter the professional program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>069:150</td>
<td>Clinical Laboratory Skills</td>
<td>6</td>
</tr>
<tr>
<td>069:152</td>
<td>CLS Theory, Application, and Correlation</td>
<td>5</td>
</tr>
<tr>
<td>069:154</td>
<td>Clinical Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>069:155</td>
<td>Clinical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>069:156</td>
<td>Clinical Hematology I</td>
<td>4</td>
</tr>
<tr>
<td>069:157</td>
<td>Clinical Hematology II</td>
<td>3</td>
</tr>
<tr>
<td>069:158</td>
<td>Clinical Microbiology I</td>
<td>4</td>
</tr>
<tr>
<td>069:159</td>
<td>Clinical Microbiology II</td>
<td>3</td>
</tr>
<tr>
<td>069:160</td>
<td>Clinical Immunology and Molecular Diagnostics</td>
<td>1</td>
</tr>
<tr>
<td>069:162</td>
<td>Clinical Immunohematology I</td>
<td>3</td>
</tr>
<tr>
<td>069:163</td>
<td>Clinical Immunohematology II</td>
<td>2</td>
</tr>
<tr>
<td>069:164</td>
<td>Phlebotomy for Clinical Laboratory Science</td>
<td>1</td>
</tr>
<tr>
<td>069:166</td>
<td>Urine and Body Fluid Analysis</td>
<td>1</td>
</tr>
<tr>
<td>069:170</td>
<td>Clinical Laboratory Management I</td>
<td>2</td>
</tr>
<tr>
<td>069:171</td>
<td>Clinical Laboratory Management II</td>
<td>3</td>
</tr>
</tbody>
</table>
For course descriptions and prerequisites, see Pathology in the Catalog.

Admission

Admission to the clinical laboratory sciences professional program is competitive; enrollment may be limited. Applications are reviewed yearly beginning October 15 for students planning to begin the program the following May. Applications are accepted until the class is filled.

Applicants must have completed all of the following prerequisites and must have earned at least 86 s.h. of college credit by the beginning of the professional program (fourth year).

- Biological sciences--must include microbiology (with lab), genetics, and immunology 16 s.h.
- Chemistry--must include two semesters of general chemistry, two semesters of organic chemistry, and one semester of organic chemistry lab or biochemistry 16 s.h.
- Mathematics through precalculus level 3 s.h.
- Statistics 3 s.h.
- English 6 s.h.
- Public speaking/oral communication 3 s.h.

Applicants must have a cumulative grade-point average of at least 2.70 both overall and in science. Those who intend to receive a Bachelor of Science from The University of Iowa must fulfill all College of Liberal Arts and Sciences General Education Program requirements before beginning the professional program. University of Iowa students satisfy the English and public speaking requirements by fulfilling the General Education Program rhetoric requirement. Students must satisfy any English as a Second Language requirements specified by the University before beginning the professional program.

Students should consult with a Clinical Laboratory Sciences Program advisor as early as possible to plan preclinical studies that meet all requirements.

Expenses

Students are responsible for buying textbooks and paying University of Iowa tuition and student fees. Students who intend to receive a Bachelor of Science in clinical laboratory science from The University of Iowa at the end of the professional program must pay full-time study University tuition and fees. Students in the clinical laboratory sciences certificate-only program may pay reduced tuition and fees. Contact the Clinical Laboratory Sciences Program for more information.

Students must arrange and pay for their own meals and housing, including meals and lodging during the summer session.

The Clinical Laboratory Sciences Program provides laboratory coats for professional program students.
The Department of Dermatology instructs M.D. students and trains dermatology residents in the care of patients with skin diseases. It also provides researchers with an opportunity to develop their skills in dermatology.

**M.D. Student Training**

The Carver College of Medicine is one of the few medical colleges in the country with a required dermatology rotation for students. Each third-year M.D. student spends two weeks in the clinic and attends around 10 one-hour lectures. Students see a good cross-section of patients, including those receiving primary or tertiary care at University of Iowa Hospitals and Clinics and a large number of patients referred from Student Health Service. Additional patients are seen at the nearby Iowa City Veterans Affairs Medical Center.

Varied electives are open to fourth-year M.D. students, including further clinical experience, dermatologic research, and special studies.

**Dermatology Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>062:001</td>
<td>Clinical Dermatology</td>
<td>2 s.h.</td>
<td>Basic dermatology; lectures, independent study, clinical experience. Prerequisite: third-year M.D. enrollment.</td>
</tr>
<tr>
<td>062:002</td>
<td>Dermatology Elective</td>
<td>arr.</td>
<td>Advanced clinical experience, dermatologic surgery, special assignments. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>062:004</td>
<td>Research in Dermatology</td>
<td>arr.</td>
<td>General principles of medical research; clinical or laboratory projects; individual study.</td>
</tr>
<tr>
<td>062:999</td>
<td>Dermatology off Campus</td>
<td>arr.</td>
<td>Arranged by student with departmental approval.</td>
</tr>
</tbody>
</table>

Dietetic Internship

Director: Laurie Kroymann
Web site: http://www.healthcare.uiowa.edu/fns/internship/internship.htm

University of Iowa Hospitals and Clinics offers a Dietetic Internship Program that is fully accredited by the American Dietetic Association Commission on Accreditation for Dietetics Education. It qualifies graduates to take the exam for qualification as a Registered Dietitian (RD). Clinical dietitians and food service operation managers of the Department of Food and Nutrition Services at University of Iowa Hospitals and Clinics provide the teaching for the program. Graduate courses in the program are administered by the Carver College of Medicine and the College of Public Health. See "Associated Courses" below.

Students generally complete the program with 9 s.h. of graduate credit, which may be applied toward an advanced degree. Approximately half of the program's graduates go on to complete advanced degree programs, typically a master's degree in health promotion, public health, or business.

University of Iowa Hospitals and Clinics awards a certificate to the program's graduates.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They also must complete a didactic program in dietetics that has approval of the ADA Commission on Accreditation for Dietetics Education.

Students enter the program in the fall semester. The postmark deadline for applications is February 15.

Associated Courses

For course descriptions, see "Nondepartmental Courses" in the Carver College of Medicine section of the Catalog and "Courses" in the Epidemiology section (College of Public Health).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>050:203</td>
<td>Clinical Dietetics</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>173:230</td>
<td>Principles of Dietary Assessment</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>173:235</td>
<td>Nutritional Epidemiology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>173:236</td>
<td>Nutrition Intervention in Clinical Trials Research</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>173:237</td>
<td>Nutrition Intervention in Research Lab</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Emergency Medicine

Director: Andrew Nugent
Clinical professor: Mark Graber
Associate professors (clinical): Azeem Ahmed, Hans House, Charles Jennissen
Assistant professors (clinical): Agustin Aguilar, Gregory Bell, Chris Buresh, Carlyn Christensen-Szalanski, Dana Collaguazo, Harlo Hove, Mark Nunge, Bobby Peters, Mike Takacs, Olivia Bailey, Christine Miyake
Adjunct assistant professor: Rhonda Sowards
Web site: http://www.uihealthcare.com/emergencymedicine

The Department of Emergency Medicine prepares new physicians to recognize and treat a variety of urgent and emergent conditions. The program fosters basic science and clinical research relevant to emergency medicine and is dedicated to the education and training of Emergency Medical Services (EMS) personnel through the Emergency Medical Services Learning Resources Center (EMSLRC).

M.D. Student Training

Elective rotations for Doctor of Medicine students are available at University of Iowa Hospitals and Clinics and at several other sites throughout Iowa, including St. Luke's Hospital, Cedar Rapids; Great River Medical Center, Burlington; Covenant Medical Center, Waterloo; Broadlawns Medical Center, Des Moines; and Mercy Medical Center, Sioux City. Students also may arrange an off-service elective independently with established residency programs throughout the United States.

The program offers an annual introductory month to emergency medicine; advanced life support; and Wilderness Medicine, a rotation that includes a trip to wilderness areas such as the Death Valley and Mount Whitney areas of California.

Residency Program

The emergency medicine faculty directs the Iowa Emergency Medicine Residency, Iowa's only emergency medicine residency. The residency is a three-year program that prepares residents for careers in diverse areas of emergency medicine, from rural practice to academics. The program emphasizes critical care training and rotations in a wide variety of specialties. Part of the clinical component is spent at St. Luke's Hospital, Cedar Rapids.

Resources

The Emergency Treatment Center, located on the first floor of Roy Carver Pavilion, is a Level I Adult and Pediatric Trauma Center. It serves as a referral center for communities across Iowa.

Emergency Medicine Courses

184:220 Emergency Medicine: St. Luke's, Cedar Rapids 4 s.h.
Preceptorship with full-time emergency department physicians; clinical shifts, case conferences, simulations, exams. Prerequisite: completion of M.D. third year.

184:221 Emergency Medicine UIHC arr.
Preceptorship with residents and faculty; emphasis on principles of acute medicine; clinical shifts, case conferences, simulations, exams. Prerequisite: completion of M.D. third year.

184:222 Emergency Medicine off Campus arr.
Preceptorship with residents and faculty; emphasis on principles of acute medicine. Prerequisites: completion of M.D. third year and consent of instructor.

184:223 Rural Emergency Medicine at Burlington, Iowa 4 s.h.
In-depth clinical experience in a busy rural hospital emergency department under supervision of residency-trained emergency physicians; lectures, skill labs, projects. Prerequisite: completion of M.D. third year.

184:224 Introduction to Advanced Life Support Skills 4 s.h.
Experience managing acute threats to life, including trauma, respiratory failure, poisoning, sepsis, stupor/coma, and acute MI, using ACLS and PALS courses and clinical manikin work with EMS staff. Prerequisite: completion of M.D. third year.
184:225 Wilderness Medicine 4 s.h.
Didactic and scenario training in physiology, diagnosis, and emergency treatment of heat- and cold-related illnesses, high altitude disorders, wilderness trauma, envenomations, and immersion injuries. Taught in wilderness areas. Prerequisite: completion of M.D. third year.

184:402 Emergency Medicine Des Moines 4 s.h.
Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Broadlawns Hospital, Des Moines. Prerequisites: completion of M.D. third year and consent of department.

184:425 Emergency Medicine Waterloo 4 s.h.
Participation in acute emergency care, management of acute illnesses, follow-up care when possible; Covenant Medical Center, Waterloo. Prerequisite: completion of M.D. third year.

184:430 Emergency Medicine Sioux City 4 s.h.
Experience with a routine cross section of emergency problems in a regional trauma center and with functions of area resource hospitals (St. Luke's Medical Center, Mercy Medical Center); option to accompany ambulance crews. Prerequisites: completion of M.D. third year and basic life support certification.

184:998 Emergency Medicine on Campus arr.
Clinical research experience with a mentor in the Emergency Treatment Center and the Department of Emergency Medicine; principles of design, methodology, basic statistics.
Family Medicine

Head: Paul James

Professors: George R. Bergus, John Ely, Paul James, Gerald J. Jogerst, Clarence D. Kreiter, Barcey T. Levy

Professors emeriti: Arthur Hartz, Reuben B. Widmer, Glenys O. Williams

Professors (clinical): Richard Dobyns, Daniel Fick, Steven Wolfe

Adjunct clinical professor: John E. Sutherland

Associate professor: Marcy Rosenbaum

Associate professors (clinical): David Bedell, Robert Garrett, David Kearns, Michael Maharry, Anne Sullivan

Adjunct clinical associate professors: Gordon Baustian, Anthony Day, Robert Friedman, Scott Henderson, Michael Jung, Gerald Loos, Lawrence Matthews, Gerald McGowan, Jay Mixdorf, Kurt Rosenkrans, Larry Severidt, Craig Whittenberg, Charles Zelnick

Assistant professor: Rick Axelsson

Assistant professors (clinical): Alison Abreu, Jill Endres, Adelaide Gurwell, Matthew Lanternier, Britt Marsussen, Sandra Rosenfeld, Wendy Shen, Kelly Skelly, Jason Wilbur

Adjunct assistant professor: Larry Shosstrom


Adjunct instructors: Charles Taylor, Veronica Wieland

Associate professors: Aaron Olson, Lisa Soldat

Adjunct associate: Glenn Abernathy, Nasser Azez, Harriet Echternacht, Nicholas S. Galioto, Patrick Gordon, Savita Hegde, Natalie Lanternier, Jason Powers, James Putman, Katharine Saunders, Julia Swanson

Web site: http://www.uihealthcare.com/familymedicine

M.D. Student Training

The Department of Family Medicine trains primary care physicians. The department offers course work that is included throughout the four-year M.D. program. Twenty-one elective senior rotations give students opportunities for exposure to various Iowa communities through work in affiliated hospitals or connected facilities, in the department's model office on the University campus, and in preceptorships with selected family physicians throughout the state. There also is the opportunity for independent study during the fourth year.

Residency Program

Family Practice Residency

The Department of Family Medicine directs a three-year residency program whose graduates are eligible for certification by the American Board of Family Medicine. The residency program trains physicians to provide continuous and comprehensive medical care to patients and their families. Residents are educated in all areas of family medicine--adult medicine, maternal and child health, behavioral science, surgical specialties, and community medicine. Training emphasizes the value of wellness and preventive medicine as well as curative medicine.

The program is organized as a progressive educational experience. It consists of formal teaching and clinical experiences on assigned rotations, structured conferences, and patient care in the Family Care Center. As residents develop clinical skills, medical judgment, and competence, their patient responsibilities increase. Some patients at the Family Care Center are assigned to residents, who provide medical care under faculty supervision. Each resident is responsible for his or her patients for the duration of the residency program.

Residents also learn the principles of practice management, including organizational and administrative decision making, patient record and bookkeeping procedures, and chart auditing methodologies.

Residents are expected to take responsibility for their learning environment, to avail themselves of the department's diverse resources, and to collaborate with the faculty in order to have the best possible learning experience.

Family Practice-Psychiatry Residency

The Department of Family Medicine and the Department of Psychiatry cosponsor the combined Family Practice-Psychiatry Residency Program. The program's residents acquire broad-based training in both disciplines, including focused training in geriatrics and geriatric psychiatry, substance and alcohol abuse, diagnosis and treatment of depression, delirium, eating disorders, panic disorders, and neurotic and somatizing behavior. Graduates are eligible for certification by the American Board of Family Medicine and the American Board of Psychiatry and Neurology.

Facilities

The Department of Family Medicine is located on the University of Iowa health sciences campus. Faculty offices are close to the Family Care Center, where patients are seen by appointment. The department also has community-based
clinics in southeast Iowa City and North Liberty, Iowa, and a rural satellite office located in Lone Tree, Iowa.

**Family Medicine Courses**

115:203 Medical Education Community Orientation 0 s.h.
Experience in a local health care delivery system away from the University setting, between first and second year of M.D. program.

115:300 Preceptorship in Family Medicine arr.
One-on-one experience with a practicing physician in his or her office; exposure to illnesses, conditions often seen in primary care; realistic background for evaluation of family medicine as a career alternative.

115:401 Family Medicine Clerkship, Broadlawns Hospital, Des Moines Family Health Center 4 s.h.
Clinical experience in inpatient and outpatient care. Prerequisite: consent of department.

115:403 Lone Tree Family Medicine Clerkship 4 s.h.
Experience providing patient care in a rural setting; continuity of care for patients of all ages. Prerequisite: fourth-year M.D. enrollment.

115:404 Advanced Preceptorship in Family Medicine 4 s.h.
Experience in community practice of family medicine. Prerequisites: consent of individual preceptor and family practice advisor.

115:405 Subinternship in Family Medicine, University of Iowa arr.
Inpatient aspects of family medicine’s key components; experience on the family medicine inpatient service.

115:406 Subinternship in Family Medicine, Iowa Lutheran 4 s.h.
Patient-oriented interactive experience in an inpatient family practice environment. Prerequisite: fourth-year M.D. enrollment.

115:407 Family Medicine, Iowa Lutheran arr.
Prerequisite: fourth-year M.D. enrollment.

115:408 U of I Family Medicine Clerkship 4 s.h.
Work with family practice residents and staff in day-to-day delivery of primary medical care at Family Practice Center; experience in the Family Stress Clinic observing family-centered counseling; nursing home visits, work with departmental social worker and sports medicine specialist.

115:409 Family Medicine, Mason City 4 s.h.
Work with family physicians on staff at Mercy or other affiliated community hospitals; management of all patients admitted by the family physicians, participation in care rendered by consultants; primary care experience in family practice office. Prerequisite: consent of department.

115:410 Independent Studies arr.
Work with departmental researcher on investigation in family medicine, community medicine, health care delivery, health maintenance, and other areas. Prerequisite: consent of department.

115:411 Rural Preceptorship in Family Medicine 4 s.h.

115:415 Subinternship in Family Medicine--Cedar Rapids 4 s.h.
Experience as a junior resident in all areas of inpatient family medicine, including maternity care, child and adolescent health, adult medicine.

115:416 Clerkship in Family Medicine--Cedar Rapids 4 s.h.
Experience as a junior resident in all areas of family medicine, including maternity care, child and adolescent health, adult medicine.

115:417 Continuity of Care - Family Medicine 4 s.h.
Longitudinal continuity of care experience for fourth-year M.D. students in an outpatient family medicine setting.
115:419 **Family Medicine Clerkship, Davenport** 4 s.h.
Assignment to problems commonly seen in family practice office; supervision by residents and faculty for history and physical evaluation and diagnostic workups and treatment of each specific problem; exposure to acutely ill patients in services of medicine, surgery, obstetrics, pediatrics. Prerequisite: consent of department.

115:420 **Family Medicine Clerkship, Sioux City** 4 s.h.
Methods common in family practice medicine; participation in care of patients seen by family practice physicians and residents. Prerequisite: consent of department.

115:423 **Subinternship in Family Medicine, Waterloo** 4 s.h.
Experience working as a member of family practice inpatient team at Allen Memorial Hospital and Covenant Medical Center, following patients from admission through discharge.

115:424 **Family Medicine Clerkship, Waterloo** 4 s.h.
Rotation at the Northeast Iowa Family Practice Center; work with patients from outpatient care through hospitalization; basic concepts of family practice, team concept in medical care.

115:426 **Geriatrics Elective** arr.
Experience in monitoring and evaluating health and functional status of patients age 65 and older in the UI Geriatric Assessment Clinic and community settings. Same as 078:800.

115:429 **Subinternship in Family Practice, Sioux City** 4 s.h.
Experience as a junior resident in all areas of family medicine. Prerequisite: fourth-year M.D. enrollment.

115:430 **Subinternship in Family Medicine, Davenport** 4 s.h.
Experience in inpatient family medicine; assessing and managing hospitalized patients, evaluating and treating patients in the emergency room, participating in call coverage with family medicine residents.

115:999 **Family Medicine off Campus**
Clerkships; may include community hospitals.
Free Radical and Radiation Biology

Director: Douglas R. Spitz
Professors emeriti: Frank Hsieh-Fu Cheng, James W. Osborne
Associate professors: Kyle E. Brown, Brent Carter, Gary E. Christensen, Prabhat C. Goswami, Anjali Gupta, Aloysius J. Klingelhofer, Michael Knudson, Francis J. Miller, Aliye Uc
Assistant professors: Paloma Giangrande, Apollina Goel, Fiorenza Ianzini, Yusuf Menda, Xiaodong Wu
Adjunct assistant professors: Nukhet Aykin-Burns, Michael L. McCormick, Michael Schultz, Damon C. Shutt
Graduate degrees: M.S., Ph.D. in Free Radical and Radiation Biology
Web site: http://www.uiowa.edu/~frrbp/

The Free Radical and Radiation Biology Program provides in-depth training and research experience in the physical, chemical, and biological effects of radiation. It also focuses on free radical biology. Free radicals, which are generated in great number by radiation, play a major role in the interaction of radiation with biological systems. Free radicals are of great interest to basic researchers and clinicians because of their role in a variety of diseases and pathological states, including aging and cancer. The program stresses the importance of all of these areas to scientific research, clinical medicine, and public health.

Undergraduate Education

Three courses, 077:103 Radiation Biology, and 077:107 Special Topics: Advanced Undergraduates and 077:108 Special Topics: Advanced Undergraduates, are open to University of Iowa undergraduates. Students who want an overview of the biological effects of radiation, including the role of free radicals, will find 077:103 Radiation Biology especially appropriate. All three courses are appropriate for students who plan to enter medicine, nuclear medicine technology, environmental health, or related programs.

Graduate Programs

The Carver College of Medicine administers graduate programs in free radical and radiation biology; graduate degrees are granted through the Graduate College. See Carver College of Medicine and Graduate College in the Catalog for general information about study in medicine and graduate study at the University.

The Master of Science requires a minimum of 30 s.h. of graduate credit; the Doctor of Philosophy requires a minimum of 72 s.h. of graduate credit.

The M.S. and Ph.D. programs in free radical and radiation biology are open to graduate students with a background in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering.

After completing the introductory course 077:103 Radiation Biology, students typically concentrate on a particular aspect of the field. Some students elect to focus on radiation biology, while others choose to emphasize free radical biology.

In addition to formal lectures and some structured laboratory exercises, plans of study for free radical and radiation biology students involve small-group conferences, discussions, and seminars. Students are encouraged to spend at least one semester as a teaching assistant, for which no registration is required and no academic credit is given.

Postgraduate Training

Postdoctoral training is available by arrangement with the program's director and individual faculty members. Contact the Free Radical and Radiation Biology Program.

Financial Support

Graduate students are supported as graduate assistants from funds available through research grants and contracts or from departmental funds. Individual postdoctoral awards also may be available; the candidate and his or her faculty sponsor apply for them jointly.

Facilities

The Free Radical and Radiation Biology Program has a 300 kVp orthovoltage X-ray generator and other radiation sources, including a kilo-Curie Cs-137 irradiator. Students and staff also have access to other radiation sources, such as the Co-60 gamma source and linear accelerators in the Department of Radiation Oncology.

The program has a number of radiation detectors and counters, including liquid scintillation counters. It also has
ultraviolet/visible spectrophotometers; various types of equipment for densitometry, chromatography, and electrophoresis; molecular biology equipment, including thermal cyclers; an automatic cell counter and particle sizer; tissue culture facilities; Typhoon Phosphoimager; HPLC; Electron Spin Resonance Spectrometers; and nitric oxide analyzers.

**Free Radical and Radiation Biology Courses**

077:103 **Radiation Biology**
Characteristics and biological effects of ionizing radiations. Offered fall semesters. Prerequisite: consent of instructor.

077:107 **Special Topics: Advanced Undergraduates**
Readings and/or laboratory experience. Offered fall semesters. Prerequisite: consent of instructor.

077:108 **Special Topics: Advanced Undergraduates**
Readings and/or laboratory experience. Offered spring semesters. Prerequisite: consent of instructor.

077:207 **Seminar: Free Radical and Radiation Biology**
Offered fall semesters.

077:208 **Seminar: Free Radical and Radiation Biology**
Offered spring semesters.

077:211 **Medical Physics**
Characteristics of X-ray machines, nuclear accelerators, teletherapy devices; properties of X-rays and gamma rays, their interaction with matter; radiation exposure, depth dose measurements; radiation therapy. Offered spring semesters of even years. Prerequisite: 8 s.h. of physics or consent of instructor. Same as 029:240.

077:222 **Free Radicals in Biology and Medicine**
Chemistry of free radicals, antioxidants; antioxidant enzymes--their structure, function, regulation; targets of free radicals--lipids, proteins, DNA; free radicals in health and disease. Offered spring semesters of odd years. Prerequisite: 004:121 or 099:120.

077:288 **Molecular and Cellular Biology of Cancer**
Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Prerequisites: strong basic science background and consent of instructor. Same as 069:288.

077:305 **Research: Free Radical and Radiation Biology**

077:306 **Research: Free Radical and Radiation Biology**

077:307 **Research: Special Topics**

077:308 **Research: Special Topics**

077:545 **Topics in Free Radical Biology and Medicine**
New literature in area of free radicals. Offered fall semesters. Prerequisite: consent of instructor.

077:546 **Topics in Free Radical Biology and Medicine**
Offered spring semesters.

077:547 **Topics in Radiation and Cancer Biology**
Emerging concepts in the biological effects of radiation and cancer biology; current topics in journal club format. Offered fall semesters. Prerequisite: consent of instructor.

077:548 **Topics in Radiation and Cancer Biology**
Offered spring semesters.
In the third year, the department's faculty members teach students for six focus weeks in Internal Medicine, and for four weeks in Pediatrics. In the second year, they participate in 050:163 Foundations of Clinical Practice II. In the first year, the student covers all facets of the discipline, including general internal medicine and primary care as well as the specialized areas of allergy and immunology, cardiology, clinical pharmacology, endocrinology and metabolism, gastroenterology and hepatology, hematology, oncology, blood and marrow transplant, infectious diseases, nephrology, pulmonary, critical care, occupational medicine, and rheumatology.

The department is committed to the complete spectrum of medical education, from didactic and clinical education of medical students to resident and fellowship training.

M.D. Student Training

Department of Internal Medicine faculty members bear a major share of teaching first- and second-year M.D. students. In the first year, faculty members participate in 050:120 Medical Cell Biology, 050:240 Human Organ Systems, and 148:251 Principles of Medical Immunology. In the second year, they participate in 071:105 Pharmacology for Health Sciences: Medical and 061:103 Principles of Infectious Diseases. They are key participants in 050:162 Foundations of Clinical Practice I, 050:163 Foundations of Clinical Practice II, 050:164 Foundations of Clinical Practice III, and 050:165 Foundations of Clinical Practice IV CDC.
Medicine and for four weeks in 078:102 Outpatient Internal Medicine at University of Iowa Hospitals and Clinics, the
Iowa City Veterans Affairs Medical Center, or hospitals of the Des Moines Area Medical Education Consortium. M.D.
students actively participate as members of an inpatient ward team in 078:101 Inpatient Internal Medicine and in the
evaluation and management of patients at outpatient internal medicine clinics in 078:102 Outpatient Internal Medicine.

In the fourth year, M.D. students may select a clinical experience to fit their own career goals from courses offered in
general medicine, subspecialties, intensive care, and a subinternship program.

### Residency Program, Postgraduate Work

The department offers a three-year residency training program in internal medicine. In addition, most of the
department's specialty divisions offer two- and three-year clinical and research fellowships, in which fellows develop
special knowledge and skills relevant to their specialties. Fellows who hold doctoral degrees may be accepted to
programs whose major focus is laboratory research.

### Facilities

Teaching takes place in the medical services and laboratories of University of Iowa Hospitals and Clinics and the Iowa
City Veterans Affairs Medical Center, and in Des Moines at the Veterans Affairs Central Iowa Health Care System and
Iowa Methodist Medical Center.

### Internal Medicine Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>078:101</td>
<td>Inpatient Internal Medicine</td>
<td>arr.</td>
<td>Development of knowledge, diagnostic and management skills vital to care of hospitalized patients; clinical responsibilities, educational conferences, independent study.</td>
</tr>
<tr>
<td>078:102</td>
<td>Outpatient Internal Medicine</td>
<td>3-4 s.h.</td>
<td>Development of knowledge, diagnostic and management skills in the outpatient clinical setting; clinical activities, discussion of problems, independent study.</td>
</tr>
<tr>
<td>078:199</td>
<td>Learning About Living From the Dying</td>
<td>1 s.h.</td>
<td>Hospice training, monthly classes, experience volunteering in the community; focus on writing for self-reflection or publication.</td>
</tr>
<tr>
<td>078:202</td>
<td>Subinternship in Internal Medicine</td>
<td>4 s.h.</td>
<td>Student responsibility for evaluating, treating, and following patients admitted to inpatient general medicine services. Prerequisite: fourth-year medical student standing.</td>
</tr>
<tr>
<td>078:204</td>
<td>Community-Based General Internal Medicine</td>
<td>4 s.h.</td>
<td>Primary care internal medicine in a community setting. Prerequisite: fourth-year medical student standing.</td>
</tr>
<tr>
<td>078:205</td>
<td>Continuity of Care in Outpatient Internal Medicine</td>
<td>4 s.h.</td>
<td>Experience with longitudinal continuity of care for patients in the outpatient setting; clinical and didactic exposure to broad spectrum of general internal medicine problems. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>078:217</td>
<td>Integrated Topics in Infectious Diseases</td>
<td>4 s.h.</td>
<td>Questions in host-parasite interactions; monthly case study followed by journals club discussions. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>078:218</td>
<td>Critical Care Rotation, IMMC, ICU, DM</td>
<td>4 s.h.</td>
<td>Subinternship on medical critical care team, with daily rounds, teaching. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>078:219</td>
<td>Subinternship in Internal Medicine at VAMC, Des Moines</td>
<td>arr.</td>
<td>Rotation at the Veterans Affairs Central Iowa Health Care System; subinternship on general internal medicine ward. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
</tbody>
</table>
078:220 Subinternship in General Internal Medicine and ICU, Des Moines
Four-week rotation at Des Moines Medical Education Consortium; experience as a subintern in general internal medicine and the ICU. Prerequisite: fourth-year M.D. enrollment.

078:221 Public Health Medicine
Participation in ongoing projects related to public health issues of acute disease; training and career opportunities in public health practice.

078:225 General Medicine Consult Service, IMMC
Principles of consultative medicine provided by general internists to non-internal medicine patients; how to assess perioperative risk for patients evaluated before surgery.

078:250 Clinical Allergy Immunology
Pathogenesis, diagnosis, and management of asthma and allergic and immunologic diseases; conducting and interpreting relevant specialized clinical and laboratory tests; emphasis on outpatients; formal and informal teaching sessions.

078:290 Research in Allergy Immunology
Faculty-directed investigations for students interested in complement, peptides, molecular biology studies, molecular biology of C1 inhibitor and properdin, primary immunodeficiency diseases, tumor immunology, immune parameter of alcohol-related diseases, transplantation immunology.

078:300 Clinical Cardiology
Development of breadth and depth in diagnostic and therapeutic problems encountered in clinical cardiology; participation in evaluation and decisions regarding patients seen sometimes in the cardiovascular clinic, inpatient cardiology wards, and electrophysiology service.

078:304 Electrocardiography
Scalar electrocardiography with option of viewing exercise studies including treadmill testing; initial interpretation of current tracings and daily staff conferences.

078:325 Clinical Cardiology Coronary Care Experience, Iowa Methodist, Des Moines

078:333 Internal Medicine ICU off Campus
Experience as subintern in the ICU/MICU; daily rounds and teaching with medical critical care staff.

078:400 Clinical Endocrinology
New patient evaluation, inpatient referral; returning patients in diabetes, endocrine clinics; complete patient evaluations, charts; participation in clinical conferences.

078:440 Endocrine Research
Participation in all organized educational division activities, suitable clinical activities; work in research laboratory of senior staff member, participation in ongoing project. Prerequisite: consent of instructor.

078:450 Clinical Gastroenterology
Work in consultation service at University Hospitals and Clinics or Veterans Affairs Iowa City Health Care System; assistance in diagnostic procedures for patients examined as part of consultation service; participation in patient follow-up through weekly return clinic.

078:490 Research in Gastroenterology
Prerequisite: consent of instructor.

078:501 Hematology Oncology
Diagnostic skills in hematology and oncology.

078:503 Palliative Care

078:550 Clinical Infectious Disease
Diagnosis, treatment, follow-up, study of patients with infectious diseases, under staff guidance; techniques of diagnostic microbiology; participation in conferences, teaching activities.

**078:590 Research in Infectious Disease**
Projects in molecular pathogenesis of infectious diseases and/or cell biology of host defense mechanisms; additional projects in application of hospital epidemiology techniques to clinical aspects of infectious diseases.

**078:600 Pulmonary Disease**
Breadth, depth in diagnostic, therapeutic problems encountered in clinical pulmonary disease; evaluation of outpatients and inpatients under staff supervision; interpretation of special studies carried out in pulmonary function laboratory, fiber-optic bronchoscopy and brush biopsy of lung; exposure to diagnosis and management of acute respiratory failure in intensive care units at University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.

**078:601 Research in Pulmonary Disease**
Faculty-directed investigations; clinical pulmonary physiology, biopsy procedures in lung disease, pulmonary pathology, metabolic behavior of mycobacterium tuberculosis, clinical pharmacology. Prerequisite: consent of instructor.

**078:602 Medical Intensive Care Unit**

**078:625 Pulmonary Medicine and Critical Care, Gundersen Clinic** 4 s.h.

**078:650 Nephrology**
Evaluation of patients from University of Iowa Hospitals and Clinics inpatient service, Veterans Affairs Iowa City Health Care System, clinics; emphasis on early kidney disease, all varieties of hypertension.

**078:652 Clinical Nephrology, Iowa Methodist, Des Moines** 4 s.h.
Exposure to common nephrology problems, including acute renal failure, chronic renal failure, acid-base disorders, common electrolyte disorders.

**078:653 Adult and Pediatric Nephrology and Hypertension**
Prerequisite: (for 070:653) fourth-year M.D. enrollment. Same as 070:653.

**078:662 Medical and Pediatric Endocrinology**
Prerequisite: (for 070:662) fourth-year M.D. enrollment. Same as 070:662.

**078:690 Research in Renal, Hypertension, and Electrolyte Disorders**
Laboratory investigation of renal physiology; participation in ongoing research involving large and small animals, using classical clearance methodology for studying aspects of sodium metabolism, influence of drugs. Prerequisite: fourth-year M.D. enrollment.

**078:700 Clinical Rheumatology**
Clinical features of rheumatic diseases, their differential diagnosis, principles of management; patients from arthritis clinic, inpatient consultation service of University of Iowa Hospitals and Clinics, Veterans Affairs Iowa City Health Care System.

**078:800 Geriatrics Elective**
Experience in monitoring and evaluating health and functional status of patients age 65 and older in the UI Geriatric Assessment Clinic and community settings. Same as 115:426.

**078:902 Subinternship General Medicine, Gundersen Clinic, LaCrosse, Wisconsin**

**078:998 Internal Medicine on Campus**

**078:999 Internal Medicine off Campus**
Prerequisite: consent of department.
Medical Education Program

Director: Kristi J. Ferguson
Affiliated faculty: Rick Axelson (Family Medicine), Kristi J. Ferguson (Internal Medicine/Community and Behavioral Health), Clarence Kreiter (Family Medicine), Jeff Pettit (OCRME), Marcy Rosenbaum (Family Medicine)
Graduate degree: M.M.E.
Web site: http://www.healthcare.uiowa.edu/ocrme/masters/programoverview.htm

The Medical Education Program is dedicated to providing medical faculty members with formal training in medical education. The program is coordinated through the Office of Consultation and Research in Medical Education.

Graduate Program

The program offers the Master in Medical Education (M.M.E.).

Master in Medical Education

The Master in Medical Education requires a minimum of 30 s.h. of graduate credit. The program is designed to prepare medical faculty members to educate health professionals. It offers an opportunity to specialize in theory and practice of curriculum design, effective teaching, assessment, and other aspects of medical education.

Graduates of the program should be able to:

- design evidence-based education programs and materials with appropriate scope, sequence, and focus for intended learners;
- deliver effective instruction to individuals and small or large groups in classroom, laboratory, or clinical settings;
- evaluate the effectiveness of educational instruction, using formative and summative methods;
- understand basic principles of educational measurement and be able to apply them to medical education;
- use assessments to promote learning and to assess learning progress and status; and
- understand basic principles of, and be able to interpret and use, educational research.

The M.M.E. may be completed in as few as two years or as many as five. Students may begin the program in fall semester, spring semester, or summer session. Some of the required courses are offered online, and required on-campus courses have evening meeting times.

The curriculum includes 24 s.h. of required courses and 6-9 s.h. of electives. Students may tailor some course selections to their individual interests. The program's faculty provides substantial student advising and consultation.

M.M.E. students must register for at least one course each academic year in order to maintain satisfactory progress toward the degree.

During their first semester, students file a plan of study. Each student's plan must include a description of the student's goals, intended graduation date, and a list of courses the student plans to take each semester he or she is working toward the degree. The study plan must incorporate all of the courses required for the degree and must include any requests for transfer credit. The plan must be approved by the director of the M.M.E. program and by the student's advisor. Subsequent revisions of the plan must have the advisor's approval.

The Master in Medical Education requires the following course work.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>050:701</td>
<td>Instructional Design and Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:702</td>
<td>Clinical Teaching in Medical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:703</td>
<td>Educational Research and Evaluation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:711</td>
<td>Teaching Methods in Medical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:712</td>
<td>Introduction to Educational Measurement in Medical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:713</td>
<td>Assessment in Medical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:714</td>
<td>Current Issues in Medical Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:720</td>
<td>Portfolio Project</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Electives

6-9 s.h.

Students who do not do clinical teaching may substitute another course for 050:702 Clinical Teaching in Medical Education. Students may enroll in 050:714 Current Issues in Medical Education more than once, counting the credit earned in additional enrollments toward the 6-9 s.h. of electives. Students who take both 050:703 Educational Research and Evaluation and 050:713 Assessment in Medical Education may count one of the two courses toward electives.

Students must have completed at least 18 s.h. before enrolling in 050:720 Portfolio Project. In the portfolio, students
integrate the materials they have developed over the course of the program into a document. Three faculty members review the project and evaluate the student's participation in the program.

Electives require approval of the student's advisor. They may include courses in the M.M.E. program as well as those offered by relevant departments and programs (e.g., College of Education, Tippie College of Business). Graduate-level courses are numbered 100 or above.

**Admission**

Applicants should hold an M.D. degree and must have performed satisfactorily on the Medical College Admission Test (MCAT). Basic sciences applicants without an M.D. must hold an equivalent degree and must have performed satisfactorily on an admission test equivalent to the MCAT.

Applicants whose first language is not English and who do not hold a baccalaureate or advanced degree from an accredited university in the United States, English-speaking Africa, Australia, Canada (except Quebec), New Zealand, or the United Kingdom must submit scores on the Test of English as a Foreign Language (TOEFL).

Application materials must include an official transcript showing medical course work and medical degree, or equivalent for basic sciences applicants (current and former University of Iowa students do not need to request a UI transcript or transcripts previously submitted to the University); a letter of reference from the applicant's department head and two additional letters of reference; and a 300-500 word essay describing the applicant's interest in medical education and in the Master in Medical Education program.

Additional application information and forms are available on the Master in Medical Education web site. Application materials should be submitted to the University of Iowa Office of Admissions.

Application deadlines are July 15 for fall semester entry, November 15 for spring semester entry, and April 15 for summer session entry.
Medical Scientist Training Program

Co-directors: C. Michael Knudson (Pathology), Michael Welsh (Internal Medicine)

Web site: http://www.healthcare.uiowa.edu/mstp

Professional/Graduate Program

The Iowa Medical Scientist Training Program (MSTP) offers a joint Doctor of Medicine/Doctor of Philosophy. The program prepares trainees for careers in academic medicine, with emphasis on basic and clinical research.

Joint M.D./Ph.D.

The joint Doctor of Medicine/Doctor of Philosophy normally requires seven to eight years of continuous study. It provides an effective and efficient means to integrate graduate and clinical training, combining the scientific approach with clinical medicine.

In the first two years of the program, trainees enroll in the basic science and introductory clinical portions of the Carver College of Medicine Doctor of Medicine curriculum. This provides a broad exposure to the language and organizing concepts that form the foundation for a career as a physician scientist. Trainees begin the research component of the graduate phase of the program during the first two years as well, through summer laboratory rotations, enrollment in 050:213 Analyzing and Presenting Medical Research, research presentations by MSTP faculty and students, and a student-sponsored seminar series. They also attend MSTP grand rounds, a forum for patient-based discussions that emphasizes how science and medicine intersect.

The first-year curriculum addresses normal structure and function of human organ systems and emphasizes relationships among different disciplines. During the first semester, trainees take courses in biochemistry, gross anatomy, cell biology, and medical genetics. The second semester presents an integrated systemic core, which incorporates physiology, histology, and embryology and focuses on the development, structure, and function of human organ systems. Discipline-specific basic science instruction continues through the second semester with medical neuroscience and immunology courses.

The second-year curriculum emphasizes abnormal structure and function of human organ systems. Trainees take courses in pathology, microbiology, and pharmacology.

Throughout the first two years of study, students receive instruction in the foundations of clinical practice, including patient experience in medical history taking and physical examination. At the end of the second year, all trainees take Step 1 of the U.S. Medical Licensing Exam and then complete the basic core clinical clerkship in internal medicine. They gain broad exposure to the spectrum of human disease and experience with direct patient care before they enter the graduate phase of training.

At the beginning of the third year, trainees enroll in a graduate department or interdisciplinary graduate program. The focus of the graduate years of study is engagement in academic and research experiences that promote the trainees' development into independent investigators. Clinical contact is maintained during this phase of training through participation in seminar programs, MSTP grand rounds, and 050:212 MSTP Clinical Connections, a course that provides the opportunity for mentored clinical experiences.

Upon completing the Ph.D. dissertation, trainees return to the Carver College of Medicine curriculum to complete the clinical clerkship requirements for the joint M.D./Ph.D. program. During this phase, trainees bring a sophistication in the scientific approach to problem solving that they apply to human disease. They renew and develop clinical skills acquired in their early training and reinforce their understanding of the scientific basis of disease through continued participation in MSTP grand rounds. Upon completion of the clinical curriculum, trainees are awarded the M.D. and Ph.D.

Most graduates of the program elect to enter residency programs in clinical medicine and embark on careers as medical school faculty members in clinical disciplines with opportunities for basic and applied research. Other graduates accept academic appointments in basic science departments and spend a major part of their professional activity in biomedical research and teaching.

Admission

Applicants must meet requirements for admission to the M.D. program in the Carver College of Medicine; see "Admission to the M.D. Program" under Doctor of Medicine in the Catalog. They also must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants should have completed requirements for a bachelor's degree at an accredited academic institution. In
addition to outstanding academic credentials, including strength in biological, physical, and mathematical sciences, they must demonstrate aptitude for and commitment to scientific research through productive research experience during their undergraduate years or after. Admission normally is made for entry to the first year of the program, but applicants already enrolled in the Carver College of Medicine may request admission with advanced standing.

Application

The Carver College of Medicine participates in the American Medical College Application Service (AMCAS). Program applicants should select M.D./Ph.D. Program-Type on their AMCAS application and instruct AMCAS to forward their credentials to the Carver College of Medicine (IA131). Applications should be submitted as early as possible to allow careful review by the admissions committees of the Medical Scientist Training Program and the Carver College of Medicine.

All candidates must take the Medical College Admission Test (MCAT), according to Carver College of Medicine requirements. The Graduate Record Exam (GRE) is not required for admission.

Application to the Graduate College is not required before acceptance to the MSTP. Trainees admitted to the program receive assistance with Graduate College enrollment.

Financial Support

Trainees receive stipend and full tuition support from a National Institutes of Health MSTP training grant to The University of Iowa, supplemented by other institutional and individual awards. Students in the graduate phase of training receive support from their graduate departments or interdisciplinary programs, and their research advisors. The program office also helps selected trainees apply for competitive national awards for outstanding academic and research achievement.

Medical Scientist Training Program Courses

050:211 MSTP Research
Research experience. Prerequisite: Medical Scientist Training Program enrollment.

050:212 MSTP Clinical Connections
Experience with physician-scientist preceptor in medical interviewing, physical examination, patient presentation through direct patient interaction. Prerequisite: Medical Scientist Training Program graduate phase enrollment.

050:213 Analyzing and Presenting Medical Research
How to read, interpret, and present medical and scientific literature; students read and present representative papers from scientific and medical literature. Prerequisite: consent of instructor.
Microbiology

Head: Michael A. Apicella

Professors: Michael A. Apicella (Internal Medicine), Robert F. Ashman (Internal Medicine), Gail A. Bishop (Internal Medicine), John E. Butler, Steven Clegg, Charles D. Cox, Michael G. Feiss, John T. Harty, David M. Lubaroff (Urology), Linda L. McCarter, Paul B. McCray (Pediatrics), William Nauseef (Internal Medicine), StanleyPerlman (Pediatrics), Richard J. Rollor, Paul Rothman (Internal Medicine), George V. Stauffer, Mark F. Stinski, C. Martin Stoltzfus, Jerrold P. Weiss (Internal Medicine), Mary E. Wilson (Internal Medicine)

Professors emeriti: John Cazin Jr., David T. Gibson, Louis G. Hoffmann, William Johnson, Enich W. Six, Donald P. Stahl

Associate professor: Lee-Ann Allen (Internal Medicine), Bradley D. Jones, John R. Kirby, Al J. Klingelhutz (Radiation Oncology), Wendy J. Maury, Steven M. Varga, David S. Weiss, Timothy L. Yahr

Associate professor emeritus: Jose E. Rodriguez

Adjunct assistant professor: Marcia L. Cords

Adjunct lecturers: Jennifer D. Boddicker, Linda M. Knudtson

Undergraduate degree: B.S. in Microbiology

Undergraduate nondegree program: Minor in Microbiology

Graduate degrees: M.S., Ph.D. in Microbiology

Web site: http://www.uiowa.edu/microbiology

Study in the Department of Microbiology is dedicated to the branch of biological sciences that deals with the smallest living things: bacteria, archaea, fungi, algae, protozoa, and viruses. It is coupled with immunology, the study of the response of higher organisms to foreign substances.

Microbiology and immunology are at the forefront of the modern biological revolution. Microbes are often the experimental subjects of choice for examining basic genetic and biological phenomena because of their small size, rapid growth rate, and relative simplicity. A significant portion of contemporary biochemical research employs microbiological and immunological methods.

Current research is making theoretical and practical advances concerning microbial species and viruses that infect animals, including man, plants, and other microbes; the use of comparative genomics, gene expression profiling, and recombinant DNA methods to analyze basic biological processes and generate valuable products; the nature and occurrence of microbial life in extreme or unusual environments; microbial synthesis and modification of antibiotics and other natural products; the role of microbes in stabilization of the biosphere by recycling and detoxifying waste products; the genetics and regulation of metabolic processes; and the genetics and regulation of the immune response, including characterization of mechanisms used by bacteria to signal one another and characterization of interactions between different types of immune cells and their targets.

The Department of Microbiology offers degree programs for undergraduates and for graduate students and administers the academic curriculum at both levels. The College of Liberal Arts and Sciences grants undergraduate degrees in microbiology and oversees undergraduate academic policy relating to the student record. The Graduate College grants graduate degrees in microbiology.

Undergraduate Program

The Department of Microbiology offers a Bachelor of Science and a minor in microbiology.

Microbiology is an excellent major for undergraduate students who want a good general education with emphasis on an important and interesting branch of biological sciences. Graduates find employment opportunities in government, hospitals, public health laboratories, research laboratories, and industrial laboratories (food, dairy, chemical, pharmaceutical, and genetic engineering companies). Those who pursue advanced degrees have more advanced career opportunities in these same areas as well as in college and university teaching.

Bachelor of Science

The Bachelor of Science in microbiology requires a minimum of 120 s.h., including 64 s.h. of work for the major (21 s.h. in microbiology and 43 s.h. in supporting course work). Students also must complete the College of Liberal Arts and Sciences General Education Program.

The required 21 s.h. of microbiology must include at least 12 s.h. earned in University of Iowa courses numbered 061:147 Survey of Immunology and above, except 061:164 Nursing Microbiology; students may count 061:218 Microscopy for Biomedical Research toward the requirement but not 061:220 Advanced Microscopy Biomedical Research. No more than 2 s.h. of 061:161 Undergraduate Research in Microbiology (or 061:171 Honors Undergraduate Research in Microbiology for honors students) and no more than 2 s.h. of 061:163 Seminar: Microbiology may be counted toward the requirement. In order to take microbiology courses more advanced than 061:157 General Microbiology, students must earn a grade of C or higher in 061:157 General Microbiology and must have the instructor's consent. The supporting science and mathematics course work required for the major may not be taken pass/nonpass.

Students must include 061:163 Seminar: Microbiology (2 s.h.) in the required 21 s.h. of microbiology; they must take the course for credit once during their last two semesters before graduation, but they are encouraged to take it for 0 s.h. during other semesters, once they have completed 061:157 General Microbiology.
In addition to the required 21 s.h. of microbiology, the major requires supporting course work as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>002:010-002:011</td>
<td>Principles of Biology I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>004:011-004:012</td>
<td>Principles of Chemistry I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>004:121-004:122</td>
<td>Organic Chemistry I-II</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>004:141</td>
<td>Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>029:011-029:012</td>
<td>College Physics I-II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>099:120</td>
<td>Biochemistry and Molecular Biology I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>099:130</td>
<td>Biochemistry and Molecular Biology II</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

One of these:

- 22M:016 Calculus for the Biological Sciences  
- 22M:025 Calculus I  
- 22M:031 Engineering Mathematics I: Single Variable Calculus

In addition, the following courses may be recommended for some students.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>08N:080</td>
<td>Nonfiction Writing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Four-Year Graduation Plan**

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the University's Four-Year Graduation Plan. (Courses in the major are those required to complete the major; they may be offered by departments other than the major department.)

- **Before the third semester begins:** 002:010 Principles of Biology I; 004:011 Principles of Chemistry I, and 004:012 Principles of Chemistry II; an approved calculus class; and at least one-quarter of the semester hours required for graduation
- **Before the fifth semester begins:** 002:011 Principles of Biology II; 004:121 Organic Chemistry I, 004:122 Organic Chemistry II, and 004:141 Organic Chemistry Laboratory; 061:157 General Microbiology; and at least one-half of the semester hours required for graduation
- **Before the seventh semester begins:** five more courses in the major and at least three-quarters of the semester hours required for graduation
- **Before the eighth semester begins:** another 10-12 s.h. of course work
- **During the eighth semester:** enrollment in all remaining course work in the major, all remaining required General Education courses, and a sufficient number of semester hours to graduate

**Honors**

Microbiology majors who are members of the University of Iowa Honors Program may enroll in the honors program in microbiology. Membership in the University Honors Program requires that students maintain a cumulative University of Iowa g.p.a. of at least 3.33. Microbiology honors students also must maintain a g.p.a. of at least 3.33 in microbiology courses. The program requires 25 s.h. of course work in microbiology, including 6 s.h. in 061:171 Honors Undergraduate Research in Microbiology, which introduces students to experimental research. At the end of the research, students present written and oral reports. Students who successfully complete these requirements receive the B.S. with honors.

**Minor**

The minor in microbiology requires a minimum of 15 s.h. in microbiology courses, including 12 s.h. in advanced courses taken at The University of Iowa. For the minor, courses numbered 061:147 Survey of Immunology and above, except 061:164 Nursing Microbiology, are considered advanced. Students must maintain a g.p.a. of at least 2.00 in the minor. Course work in the minor may not be taken pass/nonpass. Students may count a maximum of 2 s.h. earned in 061 061:161 Undergraduate Research in Microbiology or 061:171 Honors Undergraduate Research in Microbiology, and 2 s.h. earned in 061:163 Seminar: Microbiology, toward the minor. They also may count 061:218 Microscopy for Biomedical Research, but not 061:220 Advanced Microscopy Biomedical Research.

**Graduate Programs**

The Department of Microbiology offers a Master of Science and a Doctor of Philosophy in microbiology. Graduate
study in the department is designed to help students become highly qualified in microbiology research and teaching. Admitted graduate students usually pursue the Ph.D.

Graduate study is offered in six subdisciplines: pathogenic bacteriology, microbial genetics, immunology, microbial physiology, animal virology, and bioinformatics. Several areas involve interdisciplinary training both within and outside the department, so students gain broad experience during their course of study. Students also may pursue interdisciplinary Ph.D. programs in genetics, immunology, and molecular and cellular biology.

During their first year, students rotate in three laboratories of their choice and are advised by the Graduate Student Advisory Committee. At the end of the first year, they choose a research supervisor who chairs their advisory committee. The committee provides intellectual and research guidance for the student's training.

The Department of Microbiology cooperates with other University of Iowa departments to give students ample access to diverse course offerings, seminars, and research programs. For example, microbiology students may participate in courses and seminars in immunology, genetics, molecular and cellular biology, biocatalysis/biotechnology, and electron microscopy.

All students admitted to advanced degree programs are expected to assist in departmental teaching.

**Master of Science**

The Master of Science in microbiology requires a minimum of 30 s.h. of graduate credit. M.S. students are required to earn a minimum of 12 s.h. in microbiology courses chosen from three of the department's six subdisciplines. They may substitute a course they have already taken (at The University of Iowa or elsewhere) for a course requirement, with the M.S. advisory committee's approval. Additional course requirements depend on students' interests and the advice of the examining committee.

Students must write a thesis based on their own research and defend it satisfactorily in an oral examination. No more than 9 s.h. of credit for thesis research may be counted toward the 30 s.h. required for the Master of Science.

**Doctor of Philosophy**

The Doctor of Philosophy in microbiology requires a minimum of 72 s.h. of graduate credit. Ph.D. students are required to earn a minimum of 15 s.h. of credit in graduate-level microbiology courses. They may substitute a course they have already taken (at The University of Iowa or elsewhere) for a course requirement, with the Ph.D. advisory committee's approval.

Students must pass a comprehensive examination before their sixth semester in the program and write a thesis based on their own research. The thesis must be defended satisfactorily in an oral examination.

**Admission**

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and must have completed courses in biology, chemistry (inorganic and organic), mathematics including calculus, and physics. Those admitted with deficiencies must complete the relevant course work during their first year of graduate study. Admission is determined through a review and formal vote by the faculty. Preference is given to students applying for the Ph.D. program.

**Facilities**

The Department of Microbiology is situated on the University of Iowa health sciences campus, where it shares the Bowen Science Building with the Departments of Anatomy and Cell Biology, Biochemistry, Molecular Physiology and Biophysics, and Pharmacology. Laboratory space and modern equipment are available for teaching and research.

**Microbiology Courses**

**061:005 Microbes and Our World**
Bacteria, viruses, and parasites and their role in shaping human health, industry, current affairs, history.

2 s.h.

**061:103 Principles of Infectious Diseases**
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: M.D. enrollment.

5 s.h.

**061:104 Principles Infectious Diseases--Physician Assistant**

5 s.h.
Principles and methods essential to study of microorganisms, their isolation and identification; microorganisms in infectious diseases; current immunology concepts. Prerequisite: Physician Assistant Program enrollment.

061:112 Pharmacy Microbiology
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: pre-pharmacy standing.

061:113 Dental Microbiology
Medical microbiology: bacteriology, immunology, pathogenic bacteriology, virology, mycology, parasitology. Prerequisite: D.D.S. enrollment.

061:147 Survey of Immunology
Major features of the evolutionary, ontogenic, and comparative development of innate and adaptive immune systems and their functions at the cellular and molecular levels. Pre- or corequisite: biochemistry.

061:157 General Microbiology
Principles of microbial diversity, microbial genetics, physiology and metabolism, pathogenic microbiology, virology, immunology, industrial and environmental microbiology; laboratory emphasis on basic techniques. Prerequisites: 002:010 and 002:011. Corequisite: 004:121.

061:159 Pathogenic Bacteriology
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria. Prerequisites: grade of C or higher in 061:157 and consent of instructor.

061:160 Microbial Physiology
Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:180. Prerequisite: grade of C or higher in 061:157.

061:161 Undergraduate Research in Microbiology
Experimental research under faculty supervision. Prerequisites: grade of C or higher in 061:157 and consent of instructor.

061:163 Seminar: Microbiology
Current topics in microbiology, immunology. Prerequisite: grade of C or higher in 061:157.

061:164 Nursing Microbiology
Overview of bacteria, viruses, and eukaryotic microorganisms that cause human disease; microbial structure, growth control and reproduction; immunology in the context of host defense mechanisms. Prerequisite: pre-nursing student standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.

061:168 Introduction to Animal Viruses
Basic physical, chemical, biological properties of animal viruses, their association with human disease; optional laboratory with emphasis on methods in basic, clinical, and molecular virology. Prerequisites: grade of C or higher in 061:157 and consent of instructor.

061:170 Microbial Genetics
Genetics of bacteria, bacteriophages; laboratory supplement in 061:175. Prerequisite: grade of C or higher in 061:157 or consent of instructor.

061:171 Honors Undergraduate Research in Microbiology
Experimental research under faculty supervision. Prerequisites: junior or senior standing and g.p.a. of at least 3.33.

061:175 Microbial Genetics Laboratory
Basic principles of genetic analysis of bacteria and bacteriophage. Prerequisite: consent of instructor. Pre- or corequisite: 061:170.

061:179 Bacterial Diversity
Analysis of bacteria from varied habitats; emphasis on the physiological basis and molecular characteristics of diversity. Corequisite: 061:170.
061:180 Microbial Physiology Laboratory  

061:190 Web-Based Nursing Microbiology  
Nursing microbiology, principles of immunology; web-based instruction. Prerequisite: pre-nursing standing or consent of instructor. Pre- or corequisite: 002:002 or 002:010 or 002:021.

061:201 Graduate Immunology I  
Ontogeny, activation, and function of T lymphocytes and B lymphocytes; innate immune effector mechanisms; major histocompatibility complex; antigen presentation; thymocyte positive and negative selection; signaling of T lymphocytes, B lymphocytes; emphasis on experimental methods for analysis of these processes. Prerequisites: (for 148:201) college biology, general chemistry, and introductory immunology courses. Recommended: (for 148:201) courses in biochemistry and genetics. Prerequisites (for 061:201) courses in college biology, genetics, general chemistry, and introductory immunology. Recommended: (for 061:201) biochemistry course. Same as 148:201.

061:202 Graduate Immunology II  
Intercellular adhesion in the immune system, regulation of inflammation and lymphocyte traffic, immunological tolerance, autoimmune diseases, immune responses to viruses and parasites; problem-oriented experimental approaches. Prerequisites: college biology, general chemistry, and introductory immunology courses. Recommended: biochemistry and genetics courses. Same as 148:202.

061:207 Advanced Topics in Immunology  
In-depth analysis of selected areas. Prerequisite: (for 148:221) 148:201 or 148:202. Prerequisites: (for 061:207) 061:201 and 061:202, or 148:201 and 148:202, or equivalents; and consent of instructor. Same as 148:221.

061:210 Advance Prokaryotic Molecular Biology  

061:217 Integrated Topics in Infectious Diseases  
Clinical cases used to raise questions in host-parasite interactions; case/scientific exposés followed by related journal club discussions at next class session. Prerequisite: consent of instructor. Same as 148:217.

061:218 Microscopy for Biomedical Research  
Preparation, analysis of biomedical projects by light and electron microscopy. Prerequisites: 002:114 and consent of instructor. Same as 060:218.

061:220 Advanced Microscopy Biomedical Research  
Technically advanced microscopy methods for research; individualized laboratory experience with opportunity to explore application of microscopy methods. Prerequisites: (for 060:220) an introductory microscopy course and consent of instructor. Prerequisites: (for 002:220) 002:218 or 060:218 or 061:218, or 012:156 or 052:156 or 060:156 or equivalent, and consent of instructor. Prerequisites: (for 061:220) an introductory EM course and consent of instructor. Same as 002:220, 060:220.

061:227 Advanced Topics in Microbiology  
Presentations by graduate students on selected research topics in microbiology; different topics each semester. Offered fall and spring semesters. Prerequisite: graduate standing in microbiology or consent of instructor.

061:247 Graduate Survey of Immunology  
Major features of evolutionary, ontogenic, and comparative development of innate and adaptive immune systems; their functions at cellular and molecular levels. Offered fall semesters. Same as 148:247.

061:259 Graduate Pathogenic Bacteriology  
Pathogenic bacteria, with emphasis on mechanisms of pathogenicity, laboratory methods for isolation, identification; laboratory emphasis on advanced methods for study of pathogenic bacteria; research literature. Prerequisite: consent of instructor.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>061:260</td>
<td>Graduate Microbial Physiology</td>
<td>3 s.h.</td>
<td>Bacterial genomes, cell structure, growth, energy metabolism, biosynthesis, mechanisms of signal transduction and regulation; laboratory supplement in 061:280.</td>
</tr>
<tr>
<td>061:261</td>
<td>Graduate Research in Microbiology</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>061:263</td>
<td>Graduate Student Research Seminar</td>
<td>1 s.h.</td>
<td>Presentation of thesis work in progress. Prerequisite: microbiology graduate standing or consent of instructor.</td>
</tr>
<tr>
<td>061:264</td>
<td>Directed Study in Microbiology</td>
<td>arr.</td>
<td></td>
</tr>
<tr>
<td>061:265</td>
<td>Topics in Virology Literature</td>
<td>1 s.h.</td>
<td>Papers of current interest in primary virology literature. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>061:267</td>
<td>Graduate Introduction to Animal Viruses</td>
<td>3-5 s.h.</td>
<td>Basic physical, chemical, biological properties of animal viruses, their association with human diseases; optional laboratory with emphasis on methods in basic, clinical, and molecular virology; discussion topics in the primary literature. Prerequisites: grade of C or higher in 061:157 or equivalent, and consent of instructor.</td>
</tr>
<tr>
<td>061:268</td>
<td>Biology and Pathogenesis of Viruses</td>
<td>2 s.h.</td>
<td>Molecular biology of animal DNA and RNA viruses, interaction of these viruses with eucaryotic cells; mechanisms of viral latency, persistence, cellular transformation, oncogenesis; virology literature. Prerequisites: 061:168 or 061:267 or equivalent, and biology major.</td>
</tr>
<tr>
<td>061:270</td>
<td>Graduate Microbial Genetics</td>
<td>3 s.h.</td>
<td>Genetics of bacteria, bacteriophages; supplementary laboratory work in 061:271.</td>
</tr>
<tr>
<td>061:271</td>
<td>Graduate Microbial Genetics Laboratory</td>
<td>3 s.h.</td>
<td>Basic principles of genetic analysis in bacteria. Prerequisite: consent of instructor. Pre- or corequisite: 061:270.</td>
</tr>
<tr>
<td>061:279</td>
<td>Graduate Bacterial Diversity</td>
<td>4-6 s.h.</td>
<td>Analysis of bacteria from varied habitats; emphasis on the physiological basis and molecular characteristics of diversity.</td>
</tr>
<tr>
<td>061:280</td>
<td>Graduate Microbial Physiology Laboratory</td>
<td>2 s.h.</td>
<td>Isolation and growth of bacteria, bacterial function products, nutrient transport, metabolic pathways, enzymes. Prerequisite: consent of instructor.</td>
</tr>
<tr>
<td>061:299</td>
<td>Mechanisms of Parasitism Journal Club</td>
<td>1 s.h.</td>
<td>Reviews of recent publications in molecular parasitology research and thesis research by training grant or journal club students. Same as 142:299.</td>
</tr>
</tbody>
</table>
Molecular Physiology and Biophysics

Head: Kevin P. Campbell
Executive associate head: W. Scott Moye-Rowley
Professors: François M. Abboud (Internal Medicine), Mark Anderson (Internal Medicine), Nikolai Artemyev, Michael Artman (Pediatrics), Kevin P. Campbell, Mark Chapleau (Internal Medicine), Beverly Davidson (Internal Medicine), Sarah England, Wayne Johnson, W. Scott Moye-Rowley, Robert Piper, Paul Rothman (Internal Medicine), Andrew Russo, Thomas J. Schmidt, Deborah Segaloff, Curt Sigmund (Internal Medicine), Peter Snyder (Internal Medicine), Michael J. Welsh (Internal Medicine)

Professors emeriti: Gerald DiBona (Internal Medicine), Robert E. Fellows, G. Edgar Folk Jr., Charles C. Wunder

Visiting professors: Darryl Granner, Francisco Mora

Associate professors: Michael Henry, Anne Kwitek (Internal Medicine), Amy Lee, Peter Mohler (Internal Medicine), Erwin F. Shibata, Mark Stamnes, Rams Subramanian (Biochemistry)

Assistant professors: Alessio Accardi, Michael Anderson, N. Charles Harata, Shahram Khademi (Biochemistry), Christopher Stipp (Biology), Michael Wright

Graduate degrees: M.S., Ph.D. in Molecular Physiology and Biophysics

Web site: http://www.physiology.uiowa.edu

The Department of Molecular Physiology and Biophysics offers graduate study leading to the Master of Science and Doctor of Philosophy. It participates in interdisciplinary graduate programs, including the Medical Scientist Training Program, a combined M.D./Ph.D. program offered by the Graduate College and the Carver College of Medicine, and it provides instruction in molecular physiology and biophysics for M.D., D.D.S., and other health professions students. The department also conducts a co-op exchange, a vigorous training program that gives undergraduate students the opportunity to develop as independent researchers in preparation for graduate studies.

The department's principal research areas include cell biology, genetics, endocrinology, neuroscience, and membrane physiology and biophysics; the unifying theme is the understanding of signal transduction mechanisms involved in regulating function at the cellular and molecular levels.

Graduate Program

The department offers a Master of Science and a Doctor of Philosophy in molecular physiology and biophysics.

Graduate study in molecular physiology and biophysics provides students with fundamental knowledge of life processes at molecular, cellular, and integrative levels of biological function. It also imparts knowledge of modern research skills applicable to contemporary problems.

Students may enter the graduate program through the Biosciences Program (Graduate College) or directly through the Department of Molecular Physiology and Biophysics. Those who enter directly are advised by the department's director of graduate studies, who guides them in planning required course work and introduces them to research activities of the department's faculty members.

All degree candidates have experience as classroom instructors, under faculty supervision, as part of their training.

Master of Science

The Master of Science in molecular physiology and biophysics requires a minimum of 30 s.h. beyond the bachelor's degree and is offered with and without thesis. Thesis students complete laboratory research and write a thesis that fulfills the requirements of the Graduate College (see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog). Nonthesis students complete a library research report, and a written examination on the research report area and the graduate program in physiology.

University of Iowa research assistants may pursue an M.S. in molecular physics and biophysics while continuing to work in their research laboratories. Research assistants interested in the M.S. program must submit a letter of support from their supervisor.

Doctor of Philosophy

The Doctor of Philosophy in molecular physiology and biophysics requires a minimum of 72 s.h. beyond the bachelor's degree. The core curriculum includes graduate-level courses in cell biology, molecular biology, human physiology, and neurophysiology. Advanced electives, offered by the Department of Molecular Physiology and Biophysics and other departments, cover a wide range of topics, including receptors and signal transduction, and developmental neurophysiology.

After successful completion of required course work and the comprehensive examination, students devote full time to thesis research, which culminates in preparation of a doctoral dissertation and its defense in a final oral exam.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They must have a bachelor's degree from an accredited institution, with an undergraduate major in one of the biological, chemical, physical, mathematical, or
engineering sciences and one or more years of course work in biology, physics, biochemistry, and calculus. They also must have a cumulative science g.p.a. of at least 3.00 and a combined verbal and quantitative score above 1200 on the Graduate Record Examination (GRE) General Test.

**Financial Support**

All full-time students receive financial aid in the form of tuition and stipend support from the Department of Molecular Physiology and Biophysics. Support is renewed annually based on satisfactory progress in meeting degree requirements.

**Research**

Faculty research interests in the Department of Molecular Physiology and Biophysics encompass molecular and cellular endocrinology, cellular and developmental neurophysiology, and membrane structure and function. Within these, there are multiple areas of interest, including hormone receptors, reproductive endocrinology, signal transduction, regulation of gene expression, synaptic transmission, neuronal differentiation, membrane ion channels, regulation of excitability, and cardiovascular electrophysiology and regulation. Experimental models currently being investigated include rodents, yeast, drosophila, and cultured cell lines from a variety of species.

**Facilities**

Two floors of the Bowen Science Building are devoted to research and teaching in the Department of Molecular Physiology and Biophysics. Department faculty members also occupy laboratory facilities in the Eckstein Medical Research Building and the Carver Biomedical Research Building. In addition to specialized equipment in faculty research laboratories, the department provides equipment for fluorescence microscopy, isotope analysis, cell culture, and molecular biology. It also has access to the University network and the multimedia education facilities. Additional resources are available at the Hardin Library for the Health Sciences.

**Molecular Physiology and Biophysics Courses**

- **072:152 Human Physiology for Dental Students** 4 s.h.
  Principles of human physiology, organ systems, cell function. Offered fall semesters. Prerequisites: grade of C- or higher in 002:010, 004:121, and 004:122; D.D.S. enrollment; and consent of course director.

- **072:153 Graduate Physiology** 4 s.h.
  Principles of human physiology, organ systems, cell function. Offered fall semesters. Prerequisites: grade of C- or higher in 002:010, 004:121, and 004:122; graduate standing; and consent of course director.

- **072:164 Human Physiology for Physician Assistant Students** 4 s.h.
  Principles of human physiology, organ systems, cell function. Offered summer sessions. Prerequisites: grade of C- or higher in 002:010, 004:121, and 004:122; Physician Assistant Program enrollment; and consent of course director.

- **072:180 How the Brain Works** 1 s.h.
  Brief, integrated look at how the brain works, based on recent neuroscience research; how the brain's biochemistry, anatomy, and physiology change constantly due to interaction with physical, emotional, and social environments; does the world we see around us exist outside the brain; does the mind exist; is emotion necessary for learning and memory; are we born with pre-existing circuits and codes in the brain for language, recognition of faces, and other complex behaviors; can aging of the brain be delayed; approach relevant for sciences, humanities.

- **072:184 Developmental Neurobiology** 3 s.h.
  Neural induction and nervous system patterning; neurogenesis, axon and dendrite outgrowth and targeting; synapse formation, specificity, refinement; mechanisms of neuronal cell death; myelination; neural stem cells; introduction to cellular, molecular, and genetic techniques in studies of neural development. Prerequisite: grade of B- or higher in 002:180, or graduate standing and consent of instructor. Same as 002:184, 132:184.

- **072:199 Research, Independent Study** arr.
  Prerequisites: consent of instructor; closed to molecular physiology and biophysics graduate students.

- **072:209 Receptors and Signal Transduction** 3 s.h.
Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters of even years. Prerequisites: (for 071:209) 072:153 and 156:201, or equivalents. Prerequisites: (for 072:209) 099:130 or equivalent, and consent of course director. Prerequisites: (for 132:209) medical physiology course and consent of instructor. Same as 071:209, 132:209.

072:211 Biophysics of Excitable Membranes 3 s.h.
Selected electrophysiological and biophysical topics from published research. Prerequisites: 027:130 and consent of course director.

072:220 Protein Biogenesis, Transport, and Degradation in the Secretory/Endocytic System 1 s.h.
Models for translocation across the ER membrane, quality control/protein folding in the ER lumen, ER associated degradation; mechanisms of vesicle biogenesis, cargo selection, vesicle fusion, regulation of Golgi and trans-Golgi Network biogenesis; protein internalization from the cell surface. Prerequisite: 099:130 or equivalent. Same as 060:216, 142:220.

072:221 Control of Subcellular Motility 1 s.h.
Actin filaments and microtubules in terms of their assembly dynamics and regulation; how motor proteins are controlled and adapted for movement of specific proteins and vesicles within cells; signaling through GTPases; cell motility; biogenesis, regulation of cilia and flagella. Prerequisite: 099:130 or equivalent. Same as 060:221, 142:221.

072:222 Organelle Biogenesis 1 s.h.
Biogenesis of mitochondria, peroxisomes, nucleus, and phagosomes; membrane trafficking; mitochondrial division, mitosis and cell division, entry into lysosomes via autophagy and endocytic pathways; host/pathogen interactions, function of macrophages and neutrophils. Prerequisite: 099:130 or equivalent. Same as 060:222, 142:222.

072:225 Growth Factor Receptor Signaling 1 s.h.
Basic mechanisms of growth factor receptor protein tyrosine kinase (PTK) signaling, Ras protein signaling, angiogenic growth factors and receptors. Prerequisite: 156:201 or consent of instructor. Same as 060:225, 142:225.

072:226 Cell Cycle Control 1 s.h.
Cell cycle regulation, DNA damage-dependent cell cycle regulation, redox-dependent cell cycle regulation, cellular senescence. Prerequisite: 156:201 or consent of instructor. Same as 060:226, 142:226.

072:227 Cellular Differentiation and Stem Cell Biology 1 s.h.
Cellular death and survival, mechanisms of cellular differentiation, stem cell biology, cellular transformation, epithelial/mesenchymal cell transition, tumor stem cells. Prerequisite: 156:201 or consent of instructor. Same as 060:223, 142:227.

072:240 Physiology Workshop 1 s.h.
Presentations by faculty, postdoctoral fellows, graduate students, and scientists. Repeatable. Prerequisite: graduate standing.

072:250 Topics in Molecular Physiology 1 s.h.
Current issues in molecular physiology; seminar. Prerequisite: 156:201.

072:265 Neuroscience Seminar 0-1 s.h.
Research presentations. Offered fall and spring semesters. Prerequisite: consent of instructor. Same as 002:265, 031:265, 060:265, 132:265.

072:302 Research Physiology and Biophysics Prerequisite: molecular physiology and biophysics graduate standing.

072:342 Biosciences Critical Thinking and Communication 2 s.h.
Selected papers and oral and written presentations tied to students’ research rotations; introductory seminar. Repeatable. Prerequisite: consent of instructor. Same as 002:270, 156:265.

072:402 Thesis Prerequisite: molecular physiology and biophysics Ph.D. candidacy.
Neurology

Head: Robert L. Rodnitzky
Professors: Harold P. Adams Jr., Daniel Bonthius (Pediatrics), Kevin Campbell (Molecular Physiology and Biophysics), Beverly Davidson (Internal Medicine), Patricia Davis, Mark Granner, Matthew Howard (Neurosurgery), Jun Kimura, Katherine Matthews (Pediatrics), Jane Paulsen (Psychiatry), Matthew Rizzo, Robert L. Rodnitzky, E. Torage Shivapour, Wendy Smoker (Radiology), William Talman, Daniel Tranel (Psychology), Michael Wall (Ophthalmology and Visual Sciences), Mary Ann Werz, Thoru Yamada

Professors emeriti: Adel Afifi (Pediatrics/Anatomy and Cell Biology), William E. Bell (Pediatrics), Ramon Lim

Adjunct professors: Ralph Adolphs, Antonio Damasio, Hanna Damasio, Thomas Grabowski, Henry Paulson

Associate professors: Steven Anderson, Joseph Barash, M. Eric Dyken, Deema Fattal, Robert D. Jones, Jon Tippin, Ergun Uc, James B. Worrell, Malcolm Yeh

Adjunct associate professor: Antoine Bechara

Assistant professors: Ed Aul, Natalie Denburg, Pedro Gonzalez, Enrique Leira, Ana Recober, David Rudrauf, Teri Thomsen, Andrea Swenson, Asgar Zaheer

Associate: Michelle Rutsch, Wei Zhang


Neurology is the branch of medical science concerned with diagnosis and management of disorders of the brain, spinal cord, peripheral nervous system, and muscle.

The Department of Neurology's hallmark is its history of carefully integrating patient care, scientific investigation, and the education of medical, postdoctoral, and graduate students.

M.D. Student Training, Graduate Education

The department provides clinical and clinical research training to third- and fourth-year M.D. students. The department also offers research opportunities in various fields of neuroscience, including neuropsychology, neuroimaging, and neuroanatomy, to Ph.D. students in neuroscience and psychology.

Residency Program

An active, four-year approved residency program qualifying physician trainees for board certification in neurology is a major aspect of the department's activity; experience in clinical electrophysiology, pediatric neurology, psychiatry, and neuropathology is part of this training.

Research

The faculty's investigative interests center on cognitive neuroscience, degenerative diseases, cerebrovascular disease, neurometics, neuromuscular diseases, electrophysiological correlates of central and peripheral nervous system disease, growth factors in the nervous system, control and regulation of autonomic functions, neuro-ophthalmology, movement disorders, epilepsy, and pain management. For more information see the Department of Neurology web site.

Neurology Courses

064:011 - Clinical Neurology -
Experience in clinical neurology through ward work and case-based conferences linked to required reading; neurologic examination, diagnosis of neurologic problems is emphasized; four-week clerkship.

We can accomodate up to 15 students total. That would include any students doing an elective in Neurology.

064:238 - Intro Neuropsychological Assessment -
Experience in clinical neuropsychology through selection, administration and scoring of neuropsychological tests under staff supervision, and interpretation of neuropsychological data; involvement in case presentation.

064:239 - Advanced Neuropsychological Assessment -
Continuation of 064:238, including clinical interviewing and integration of neuropsychological data into reports; involvement in case presentations.

064:302 - Advanced Inpatient Neurology -
You will spend two weeks on each inpatient service for a total of four weeks. Experience in evaluation, management of patients with seizure disorders, headache, cerebrovascular diseases etc.; conferences, clinical rounds.
Pre-req: must complete 064:011.

064:303 - Advanced Outpatient Neurology -
Experience in evaluation, management of patients with various neurologic diseases. You will spend 4 weeks seeing patients in clinic. If you have a particular interest in a certain sub-specialty we can accommodate your requests.
Pre-req: must complete 064:011.

064:310 - Cerebrovascular Disease -
Experience in evaluation, management of patients with cerebrovascular diseases; you will spend four weeks working with the stroke team; conferences, clinical rounds.
Pre-req: must complete 064:011.

064:998 - Neurology Off-Campus - Arr

064:999 - Neurology Off-Campus - Arr
Neurosurgery

Head: Matthew A. Howard III
Professors: Patrick W. Hitchon, Matthew A. Howard III, Arnold H. Menezes
Assistant professors: Jeremy Greenlee, Hiroto Kawasaki, Hiroyuki Oya

The Department of Neurosurgery provides an experience oriented toward patient care and basic research concerning diseases and physiology of the nervous system. Students develop awareness of neurosurgery's role in treating head and spine trauma, vascular disorders, brain and spinal cord tumors, pain and peripheral nerve abnormalities, degenerative spine pathology, and surgical treatment of epilepsy and movement disorders.

Clinical courses are designed around patient-centered discussions interwoven with operating room experiences. Lectures and conferences are scheduled on specific topics.

M.D. Student Training

The department provides fourth-year M.D. students with access to special expertise in selected topics of investigation regarding the central nervous system and to a clinical course through special arrangements with the faculty.

Faculty

Neurosurgery faculty strengths are centered in physiology of spinal cord trauma, epilepsy, auditory brain function and pain, primary brain tumor genetics, central nervous system tissue culture, spinal column biomechanics, and movement disorders. The department has expertise in clinical management across the spectrum of central nervous system diseases.

Facilities

Multiple, fully equipped laboratory space is available to support scientific research of the central nervous system. Faculty and technical assistance is available in all laboratories.

Neurosurgery Courses

Neurosurgery courses are open only to M.D. and qualified associated health sciences students.

183:227 Subinternship in Neurosurgery 4 s.h.
Advanced clinical clerkship in neurological surgery; emphasis on diagnosis and operative management of surgical neurological disease.

183:228 Research in Neurological Surgery arr.
Laboratory investigation of spinal cord injury, spinal column biomechanics and instrumentation, electrophysiology of pain, epilepsy and hearing, molecular genetics and physiology of brain tumors.

183:999 Neurosurgery off Campus arr.
Arranged by student with department approval.
Nuclear Medicine Technology

Director: Anthony W. Knight
Medical director: Michael M. Graham
Technical director: John A. Bricker
Professors: David L. Bushnell, Michael M. Graham, Malik E. Juweid, Daniel Kahn, Mark T. Madsen
Professor emeritus: Frank H. Cheng
Clinical professor: James A. Ponto (Pharmacy)
Assistant professor: Yusef Menda
Adjunct lecturers: Gregory T. Kelly, Anthony W. Knight
Undergraduate degree: B.S. in Nuclear Medicine Technology

Nuclear medicine technologists are professionals in a medical specialty that uses radioactive tracers for diagnostic, therapeutic, and research purposes. Technologists generally are employed in hospitals and clinics. They work hand-in-hand with nuclear medicine physicians, health physicists, radiopharmacists, and radiochemists as an integral part of a highly trained specialty team.

In addition to using sophisticated detectors and computers to trace the movement and localization of radioactive tracers in the human body, nuclear medicine technologists have responsibilities that include radiation safety; quality control testing; radiopharmaceutical preparation and administration; and general patient care.

The Nuclear Medicine Technology Program is part of the Carver College of Medicine on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. For information about the college's academic programs and resources, see Carver College of Medicine in the Catalog.

Undergraduate Program

The Carver College of Medicine offers a Bachelor of Science in nuclear medicine technology. Upon satisfactory completion of the four-year program, students receive the degree and a certificate of training. Graduates are eligible for national certification as nuclear medicine technologists.

The Nuclear Medicine Technology Program is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medical Technology (JRCNMT). Fulfillment of the requirements established by the JRCNMT Accreditation Board involves three years of preclinical work in the College of Liberal Arts and Sciences and the Carver College of Medicine, and a minimum of 12 months of professional clinical experience, available at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center.

Undergraduate study in the college is guided by the academic rules and procedures outlined in the Carver College of Medicine section of the Catalog, under "Undergraduate Programs."

Bachelor of Science

The Bachelor of Science in nuclear medicine technology requires a minimum of 124 s.h., including 30 s.h. in radiology course work (prefix 074). Required courses in the first and sophomore years emphasize the physical and biological sciences, which provide a basic background for further development in the junior year.

Applicants are strongly advised to pursue a course of study that is applicable to a baccalaureate degree, most commonly in biology, chemistry, biochemistry, or microbiology. In this way, students who are not admitted to the Nuclear Medicine Technology Program can complete a degree in their chosen area.

The following are recommended courses.

FIRST YEAR

004:011-004:012 Principles of Chemistry I-II 8 s.h.

SOPHOMORE YEAR

002:010-002:011 Principles of Biology I-II 8 s.h.

One of these:
22C:001 Computer Literacy 3 s.h.
22C:005 Introduction to Computer Science 3 s.h.
22C:016 Computer Science I: Fundamentals 4 s.h.

**JUNIOR YEAR**

027:053 Human Anatomy 3 s.h.
or
060:110 Principles of Human Anatomy 3 s.h.

029:011-029:012 College Physics I-II 8 s.h.

One of these:

22S:101 Biostatistics 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
171:161 Introduction to Biostatistics 3 s.h.
Advanced courses in chemistry, biology, or physics based on alternative major, possible minors, interest, and career goals

**Senior Year**

The curriculum of the clinical year is organized in accordance with the JRCNMT Essentials of an Accredited Educational Program in Nuclear Medicine Technology. Courses are taught in the following areas: radiopharmacy, radiobiology, radiation safety, patient care, medical terminology, anatomic and physiologic bases of nuclear medicine procedures, physics and instrumentation, administration and management, medical and professional ethics, mathematics and statistics of nuclear medicine, and computer applications in nuclear medicine. Clinical rotations focus on nuclear and positron emission tomography (PET) imaging, clinical radiopharmacy, computer applications, and quantification of radioactivity in vivo and in vitro.

The clinical year consists of these courses.

074:101 Principles of Nuclear Medicine I 6 s.h.
074:102 Introductory Clinical Nuclear Medicine 6 s.h.
074:103 Principles of Nuclear Medicine II 3 s.h.
074:104 Intermediate Clinical Nuclear Medicine 9 s.h.
074:105 Advanced Clinical Nuclear Medicine 6 s.h.

For course descriptions and prerequisites, see Radiology in the Catalog.

**Admission**

Prerequisites for admission to the Nuclear Medicine Technology Program include the following:

- a minimum of 94 s.h. of college credit, with a cumulative g.p.a. of at least 2.50;
- fulfillment of the College of Liberal Arts and Sciences General Education Program requirements in rhetoric, foreign language, interpretation of literature, humanities, historical perspectives, quantitative or formal reasoning, social sciences (sociology and psychology are recommended), and distributed general education;
- a minimum of 20 s.h. in three science areas, including a complete introductory course with laboratory in chemistry, physics, and biology; and
- a minimum of 3 s.h. in mathematics, including at least elementary functions.

Fulfillment of these basic admission requirements does not guarantee acceptance into the Nuclear Medicine Technology Program.

A new class begins every August. Application deadline is February 1. Personal interviews are scheduled in February, and the class is selected by March 15. Class size is limited to 10 students. Prospective students are encouraged to consult the Nuclear Medicine Technology Program office to plan an appropriate preprofessional program.
M.D. Student Training

Courses in the Department of Obstetrics and Gynecology are designed to give M.D. students a comprehensive survey of reproductive medicine. This is done through a series of didactic lectures, inpatient and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship 066:004 Clinical Obstetrics and Gynecology gives students the core knowledge, skills, and attitudes needed to provide primary health care to female patients.

The department offers fourth-year medical students a variety of electives that provide advanced training in the special areas of obstetrics and gynecology. In addition to clerkships at University of Iowa Hospitals and Clinics, these electives include a rotation at the Gundersen Clinic in La Crosse, Wisconsin, and other arranged off-campus courses.

Residency Program

The department offers a four-year residency. Upon completion, graduates are eligible for the written and oral examinations leading to certification by the American Board of Obstetrics and Gynecology.

Residents are assigned to the various divisions and clinical services of the department; they care for both hospital inpatients and outpatients. Training is provided in normal and abnormal obstetrics, gynecologic surgery, office gynecology, ultrasound, reproductive endocrinology, gynecologic oncology, urogynecology, family planning, and endoscopic procedures.

Obstetrics and Gynecology Courses

**066:004 Clinical Obstetrics and Gynecology**
Proficiency in evaluation and management of core women's health care relating to the reproductive tract; special history taking, physical examination, laboratory and imaging assessment of obstetric and/or gynecological patients, application of current concepts to well women's health care and to management of diseases and pathologies; outpatient and inpatient obstetrics and gynecology; family planning, screening and early detection of cancer and other diseases.

**066:006 High Risk Antepartum Obstetrics Subinternship**
Experience in evaluating new patients in a high-risk obstetric clinic; continuing antepartum care; doing work-up, ordering diagnostic studies, and following course of complicated patients admitted to obstetric ward; assisting in diagnostic, therapeutic procedures such as fetal heart rate testing, amniocentesis, ultrasonography, intrauterine fetal transfusion.

**066:010 Gynecologic Oncology Senior Elective**
Experience on a gynecologic oncology service, including operating room, inpatient and outpatient care; team management approach to gynecologic cancer patients, treatment and follow-up of invasive gynecologic malignancies, etiology and risk factors for gynecologic neoplasias, pre- and postoperative evaluation and treatment of surgical management of gynecologic neoplasias; research project encouraged.

**066:013 Reproductive Endocrinology Senior Elective**
Experience evaluating new and returning patients in the Reproductive Endocrinology and Infertility Clinic; participation in preoperative, operative, and inpatient postoperative care; advanced gynecologic ultrasonography, in vitro fertilization services.

**066:015 Urogynecology Advanced Elective**
4 s.h.
Experience as active member of urogynecology clinical team, participating in clinical care activities including outpatient clinic, outpatient procedures, inpatient surgery, hospital care; presentation to team on topic chosen by student.

066:016 Advanced Obstetric-Gynecologic Clerkship: LaCrosse, Wisconsin
Experience in a large professional obstetrics and gynecology practice group in a community setting; exposure to clinical obstetrics and gynecology.

066:998 Ob/Gyn on Campus

066:999 Ob/Gyn off Campus
Ophthalmology and Visual Sciences

Head: Keith D. Carter
Associate professors: Michael M. Abràmoff, Terry A. Braun, Arlene V. Drack, Karen M. Gehrs, Patricia A. Kirby, Robert F. Mullins, Richard J. Olson, Todd E. Scheetz, Christine W. Sindt
Assistant professors: Michael G. Anderson (Physiology), John H. Fingert, Emily C. Greenlee, Brian R. Kirschling, Anna S. Kitzmann, Markus Kuehn, Reid A. Longmuir, Susannah O. Longmuir, Vinit B. Mahajan, Steven F. Stasheff (Pediatrics), Nasreen A. Syed
Web site: http://webeye.ophth.uiowa.edu

Ophthalmology is a medical and surgical specialty concerned with the diagnosis and treatment of diseases of the eye and its adnexa. The Department of Ophthalmology and Visual Sciences combines postgraduate training with research and patient care in all aspects of the visual sciences. Subspecialties represented in the department include cataract surgery, comprehensive ophthalmology, cornea and external diseases, contact lens and refraction services, genetics and molecular biology, glaucoma, laser refractive surgery, neuro-ophthalmology, occlusoplastic surgery, ocular echography, ocular pathology, ocular vascular diseases, optometric services, pediatric ophthalmology and adult strabismus, vitreoretinal disorders, and vision rehabilitation.

M.D. Student Training, Graduate Education

The department offers clinical and research training to M.D. students and limited graduate studies for Ph.D. students in Anatomy and Cell Biology, Molecular and Cellular Biology, and Genetics. A three-year residency program with clinical experience in the ophthalmic subspecialties is offered to physician trainees. Graduates qualify for the written and oral examinations leading to certification by the American Board of Ophthalmology. Postgraduate fellowships of one to two years are available for qualified ophthalmologists in most subspecialty areas.

Continuing Education

The department sponsors clinical conferences open to community ophthalmologists in Iowa and surrounding states where physicians can earn continuing medical education credits. The department also sponsors an annual alumni meeting with participation by nationally and internationally recognized ophthalmologists and vision scientists.

Facilities

The department maintains research laboratories for cell biology, biochemistry, morphology, tumor diagnosis, pathology, electrophysiology, pupillography, molecular biology, and vascular disease. Clinical facilities in ophthalmology are available at University of Iowa Hospitals and Clinics in the Pomerantz Family Pavilion and at the Iowa City Veterans Affairs Medical Center and the Veterans Affairs Central Iowa Health Care System in Des Moines. The department also manages an eye clinic at the Broadlawns Medical Center in Des Moines as well as outreach programs in other communities. The department houses the University of Iowa Carver Family Center for Macular Degeneration.

Ophthalmology and Visual Sciences Courses

067:100 Elective in Ocular Pathology
Pathophysiology of eye disease; emphasis on use of Socratic method, self-study.

067:101 Elective in External Eye Disease
Common diseases of eyelid, conjunctiva, cornea.

067:102 Elective in Neuro-Ophthalmology
Visual, ocular motor dysfunction due to neurologic disease; patient work-up, readings, neuro-ophthalmology rounds.

067:109 Molecular Ophthalmology
Use of recombinant DNA, tissue culture, protein electrophoresis in study of inherited eye diseases. Prerequisite: consent of instructor.

067:111 Clinical Ophthalmology
All aspects of clinical ophthalmology; patient rounds, lectures, case presentations; clinical duties with staff, residents, faculty in UIHC and VAMC ophthalmology clinics.
067:998 Ophthalmology on Campus

067:999 Ophthalmology off Campus
Orthopaedics and Rehabilitation

Head: Joseph A. Buckwalter
Professors emeriti: Richard C. Johnston, Timothy A. Tomesen
Clinical professors: Richard C. Johnston, Timothy A. Tomesen
Associate professors: Ernest M. Found, Neil Segall
Clinical associate professors: Joseph J. Chen, Barry DeYoung, John E. Femino, Sergio A. Mendoza
Adjunct clinical associate professor: Devon D. Goetz, David S. Tearse
Assistant professors: Nicole M. Grosland, Jose A. Morcuende, Nicolas Noiseux, Joseph D. Smucker, Glenn Williams, Brian R. Wolf
Clinical assistant professors: Heather Bingham, Ericka A. Lawler, Phinit Phitiskul, Robert Yang
Adjunct clinical assistant professor: Mark C. Mysnyk

The Department of Orthopaedics and Rehabilitation offers training for residents and provides education for undergraduate students.

Residency Programs

The department offers two programs for postgraduate trainees. The first is a five-year integrated clinical program, in which interns and residents participate simultaneously in inpatient and outpatient care, surgery, and sciences related to the neuromusculoskeletal system. The second provides the same training as the first, but includes an additional one to two years of research.

Clinical Residency

Trainees enter this program directly from medical school through the National Internship Matching Plan.

During the first year, trainees gain experience not only in clinical orthopaedics but also in medicine, pediatrics, surgical specialties, intensive care, anesthesiology, and other services.

During years two through five, residents gain experience in trauma, musculoskeletal oncology, children's orthopaedics, adult orthopaedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science related to orthopaedics. They take specialized courses in anatomy, bone histology, biochemistry, physiology, and pathology.

Weekly seminars cover biomechanics, kinesiology, and selected clinical subjects.

Residency with Research

In addition to the training described for the clinical program, this program includes an additional one or two years of research in a field that interests the resident and is related to the musculoskeletal system. The research may be done in one of the orthopaedic laboratories.

Undergraduate Education

At the undergraduate level, the Department of Orthopaedics and Rehabilitation participates in the Bachelor of Science in athletic training, which is offered by the Department of Integrative Physiology (College of Liberal Arts and Sciences). Members of the orthopaedics and rehabilitation sports medicine faculty teach 076:187 Practicum in Athletic Training IV, a two-semester advanced clinical sequence (8 s.h.). Students who complete the program are eligible to apply for national certification in athletic training and pursue employment opportunities as health care professionals for sports medicine clinics and hospitals, as well as in academic settings.

Laboratories

The orthopaedics laboratories deal with problems in these major subject areas.

Biochemistry: the biochemistry of proteoglycans, collagens, and matrix proteins, both normal and altered in musculoskeletal disorders

Biomechanics: problems of the upper extremity; biomechanics of the spine, hip, and gait; total joint replacements (in conjunction with the College of Engineering)

Cell and molecular biology: studies of normal bone, cartilage, tendon, muscle, and tissues altered by experiment and disease

Facilities
The department is housed in the John Pappajohn Pavilion of University of Iowa Hospitals and Clinics and has an active service in the Iowa City Veterans Affairs Medical Center.

Facilities include 48 orthopaedic beds, five outpatient clinics, inpatient and outpatient operating rooms, a specialty library, a specialty radiology unit, and physical therapy and rehabilitation facilities.

Specialty clinics deal with disorders such as scoliosis, club feet, congenital dislocated hip, neuromuscular disease, metabolic disease, amputation, neoplasm, trauma, and neck, back, hip, foot, knee, and hand problems.

Physicians in the outpatient clinic see approximately 175 patients per day. Approximately 5,000 major operations are performed each year under the auspices of the department.

The department provides consulting service to the Center for Disabilities and Development, Child Health Specialty Clinics, and two state programs that serve people with mental retardation.

**Orthopaedics and Rehabilitation Courses**

076:002 **Clinical Orthopaedics**

076:187 **Practicum in Athletic Training IV**
Clinical experience arranged through the athletic training program and the Department of Orthopaedic Surgery for athletic training majors; development of global proficiency in clinical skills. Prerequisites: athletic training major and grade of C or higher in 027:183 and 027:186.

076:201 **Advanced Clinical Orthopaedics**
Prerequisite: fourth-year M.D. enrollment.

076:202 **Musculoskeletal Trauma**
Prerequisite: fourth-year M.D. enrollment.

076:203 **Subinternship in Orthopaedics**
Opportunity to enhance clinical skills by taking intern-level responsibility for management of a limited number of orthopaedic patients; proficiency in perioperative patient assessment and management, including assisting in procedures and using laboratory diagnosis and radiologic studies pertinent to one faculty member's clinical practice.

076:205 **Physical Medicine and Rehabilitation**

076:998 **Orthopaedics on Campus**
Prerequisite: fourth-year M.D. enrollment.

076:999 **Orthopaedics off Campus**
Prerequisite: fourth-year M.D. enrollment.
Otolaryngology--Head and Neck Surgery

Head: Bruce J. Gantz
Associate professors: Carolyn J. Brown, Anjali Gupta, Michael P. Karnell, José M. Manaligod
Clinical assistant professors: Jeffrey Carithers, Thomas A. Ericson, Steven R. Henwig, Brenton Koch, Richard B. Merrick, Irving E. Peterson, Russell E. Schurtz, Mark K. Zlab

The Department of Otolaryngology--Head and Neck Surgery is one of the most comprehensive otolaryngology departments in the world. Founded in 1922, it also is among the oldest in the United States. US News & World Report has consistently ranked the department's program among the top three in the nation.

The department's facilities are situated at University of Iowa Hospitals and Clinics.

The department's chief focus areas are education and training, patient care, and research. M.D. students in the Carver College of Medicine, residents, and fellows benefit from a faculty dedicated to providing thorough training in all aspects of otolaryngology and patient care. Patients in the otolaryngology clinic enjoy access to comprehensive care in any of five subspecialties: pediatric otolaryngology, otology/neurotology, general otolaryngology and rhinology, head and neck oncology, and facial plastic and reconstructive surgery. University of Iowa faculty members from ophthalmology and radiation oncology hold joint appointments in otolaryngology, adding depth to the department's resources.

The department is home to prominent research programs in cleft palate and other craniofacial defects, head and neck oncology, cochlear implants, and molecular genetics. It also offers fellowships in otology/neurotology, pediatric otolaryngology, and head and neck oncology.

Residency Program

Each year the Department of Otolaryngology--Head and Neck Surgery accepts five applicants to its residency program, which is accredited by the Accreditation Council for Graduate Medical Education. Three residents are matched to the four-year clinical track, and two are matched to the six-year research track.

The clinical track provides four years of concentrated clinical study and application in all aspects of otolaryngology. Residents begin their training with a seven-week intensive basic science course divided into an anatomy component and a 160-hour lecture series. The anatomy component includes a supervised cadaver dissection, and the lecture series details the study of otolaryngology and related disciplines. Each resident also completes two research rotations in order to explore research areas that interest him or her.

The research track is a combined clinical-research program designed for residents interested in an otolaryngology research career. After an internship year, residents complete two years of research followed by four years of clinical training. The interaction of clinicians and basic scientists from several departments affords residents the opportunity for involvement in a wide spectrum of current research in areas such as electrophysiology of the auditory system, the genetics of head and neck cancer, and gene therapy.

Fellowships

The Department of Otolaryngology--Head and Neck Surgery offers two-year fellowships in otology/neurotology and in pediatric otolaryngology, which are accredited by the Accreditation Council for Graduate Medical Education, and a one- or two-year fellowship in head and neck oncology accredited by the Advanced Training Council of the American Head and Neck Society.

One applicant is admitted to the otology/neurotology fellowship program every two years. Otology fellows spend a minimum of 20 months on the clinical service. They attend all otology/neurotology clinics and neurotology cases in the operating room and are responsible for inpatient service. They also have one day of dedicated research time each week.

The pediatric otolaryngology fellowship program admits one applicant each year. Fellows spend a minimum of 18 months on the clinical service, where they have the opportunity to train with all pediatric otolaryngology faculty members. Each fellow also has six months of dedicated time for academic research.

One applicant is accepted as a head and neck oncology fellow each year. Training is largely clinical, allowing fellows the opportunity to participate in a variety of procedures, ranging from skull base resection to laryngeal rehabilitation. Fellows routinely perform 35 to 45 free-tissue transfers during one year of training. They also complete a clinical and/or basic science research project relating to head and neck oncology.
Otolaryngology--Head and Neck Surgery Courses

068:003 Clinical Otolaryngology  
2 s.h.

068:100 Sub-Internship in Otolaryngology  
arr.

068:199 Basic Otolaryngologic Science  
Supervised cadaver head and neck dissection, with 14 areas in detail. Two weeks.  
arr.

068:998 Otolaryngology on Campus  
arr.

068:999 Otolaryngology off Campus  
Arranged by student with department approval.
Pathology

Head: Michael B. Cohen
Professors: Gary L. Baumbach, Jo Ann Benda, Michael B. Cohen, Robert T. Cook, Fred Dee, Barry De Young, Daniel Diekema, Siegfried Janz, George F. Johnson, John D. Kemp, Patricia Kirby, Charles F. Lynch, Frank A. Mitros, Steven Moore, Marcus Nashelsky, Tom Raife, Robert A. Robinson, Nancy Rosenthal, Mary Stone, Lubomir P. Turek, Steven Vincent, Thomas Waldschmidt
Adjunct clinical professor: Oskar W. Rokhlin
Associate professors: Jackie R. Bickenbach, Leslie A. Bruch, Laila Dahmoush, Morris O. Dailey, Ronald D. Feld, Thomas H. Haugen, Michael Henry, Chris Jensen, Michael Knudson, Ramesh Nair, Sandra Richter, Annette Schlueuter, Robert D. Tucker
Adjunct clinical associate professor: Julia C. Goodin
Assistant professors: Ryan Askeland, Vladimir Bodovinac, Aaron Bossler, Yasuko Erickson, Hasem Habelhah, Jonathan Heusel, Fiorenza Ianzini, Michael Icardi, Toshiki Itoh, Stacey Klutts, Matthew Krasowski, Kevin Legge, Vincent Liu, David Meyerholz, Peter Nagy, Vishala Neppalli, Brian Swick, Nasreen Syed, Sergi Syrbu
Adjunct clinical assistant professors: Michelle Catellier, Timothy Drevankyo, Dennis Klein, Jerri McLemore, L. Jeffrey Rissman, Jonathan Thompson
Graduate degree: M.S. in Pathology
Web site: http://www.medicine.uiowa.edu/pathology

The Department of Pathology offers basic pathology courses to health sciences students; a clinical training program for clinical laboratory scientists; a Master of Science in pathology; residency training programs leading to American Board of Pathology certification in anatomic pathology, clinical pathology, and neuropathology; fellowship training in pathology subspecialties; and postdoctoral research training in cellular and molecular pathology.

Clinical Education

See Clinical Laboratory Sciences in the Catalog.

M.D. Student Training

The department provides seven 12-month medical student fellowships for M.D. students: the Emory Warner Fellowship, a full-time research position in a facet of experimental pathology; and six pathology externships, for students interested in careers as pathologists. It also offers a varying number of clerkships for M.D. students in any of the areas of anatomical and clinical pathology.

Residency Program

The department offers 20 residency positions in pathology, covering a training span of up to four years. Patients of University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center are integral to the program.

Residents gain experience in systematic rotation through the varied laboratory services, including surgical pathology, autopsy pathology, neuropathology, cytology, clinical chemistry, clinical microbiology, hematology, immunopathology, and transfusion medicine. They also have the opportunity to pursue one to three years of additional fellowship training in most pathology subspecialties.

Graduate Program

The department offers a Master of Science in pathology.

Master of Science

The Master of Science in pathology requires a minimum of 30 s.h. of graduate credit, including 21 s.h. of classroom work and 9 s.h. earned for research. The program trains graduate students in cell and molecular biology. Graduates work as research scientists in a range of academic and commercial laboratories, including those in the rapidly expanding biotechnology sector. Others advance to doctoral-level study.

M.S. students take a core curriculum in cell and molecular biology as well as electives suited to their individual interests. They acquire contemporary research skills by pursuing a laboratory thesis project under the guidance of a faculty member. Currently, there are active research programs in immunology, microbiology, neuroscience, signaling and apoptosis, inflammation and vascular biology, tumor biology and cancer, and virology.

Most M.S. students complete their course of study in three years.

The department encourages applicants with Bachelor of Science degrees in biology, chemistry, biochemistry, clinical laboratory science, microbiology, and zoology. Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have an undergraduate g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1100 on the Graduate Record Exam (GRE) General test.
Postgraduate Training

The Department of Pathology offers postgraduate clinical fellowship programs in hematopathology, transfusion medicine, clinical microbiology, cytopathology, molecular genetics pathology, and surgical pathology for physicians who have completed residency training in pathology. These fellowships consist of one to two years of diagnostic work and up to two years of laboratory research.

The department provides postdoctoral research training in immunology, neuropathology, apoptosis, cancer biology, and clinical microbiology as well as in other areas of cellular and molecular pathology. These positions are open to individuals with either a Ph.D. or M.D.

Facilities

The Department of Pathology is well-equipped to carry out the sophisticated technology of modern cellular and molecular pathology. It administers more than 90,000 square feet of clinical laboratories at University of Iowa Hospitals and Clinics and has individual research and core facility laboratories, including histopathology and laser capture microscopy for cellular and molecular pathology research, in the Medical Research Center, Medical Laboratories, and at the Iowa City Veterans Affairs Medical Center. Also available are Carver College of Medicine research facilities for nucleic acid chemistry, hybridoma production, flow cytometry, ultrastructural studies, protein structure, image analysis, electron spin resonance, mass spectroscopy, nuclear magnetic resonance, and laboratory animal care.

Pathology Courses

069:130 Clinical Laboratory Medicine for Physician Assistants  0-1 s.h.
Theory and practice of selected clinical laboratory techniques and procedures; emphasis on effective use of clinical laboratory in diagnosis and management of disease. Prerequisite: Physician Assistant Program enrollment.

069:133 Introduction to Human Pathology for Graduate Students  4 s.h.
Human disease; basic disease processes, organ-related and multisystem diseases; case analysis. Offered fall semesters.

069:143 Hemostasis and Thrombosis for CLS  0-1 s.h.
Laboratory hemostasis and thrombosis; theory and practice.

069:150 Clinical Laboratory Skills  0-6 s.h.
Summer clinical laboratory science instruction in Iowa City. Prerequisite: acceptance to Clinical Laboratory Science Program.

069:152 CLS Theory, Application, and Correlation  0-5 s.h.
Theory, application, and correlation of clinical laboratory science. Prerequisite: 069:150.

069:154 Clinical Chemistry I  0-4 s.h.
Theory, practical application, technical performance, and evaluation of clinical chemistry laboratory procedures; correlation of laboratory data with diagnosis of disease. Prerequisite: 069:150.

069:155 Clinical Chemistry II  0-3 s.h.
Advanced theory, practical application, technical performance, and evaluation of clinical chemistry laboratory procedures; correlation of laboratory data with diagnosis of disease. Prerequisite: 069:154.

069:156 Clinical Hematology I  0-4 s.h.
Introduction to theory, practical application, technical performance, and evaluation of hematological and hemostasis procedures; correlation of laboratory data with disease diagnosis. Prerequisite: 069:150.

069:157 Clinical Hematology II  0-3 s.h.
Advanced theory, practical application, technical performance, and evaluation of hematological and hemostasis procedures; correlation of laboratory data with disease diagnosis. Prerequisite: 069:156.

069:158 Clinical Microbiology I  0-4 s.h.
Introduction to theory, practical application, technical performance, and evaluation of procedures for isolation, identification, and susceptibility testing of infectious disease organisms in humans. Prerequisite: 069:150.
069:159 **Clinical Microbiology II**
Advanced theory, practical application, technical performance, and evaluation of procedures for isolation, identification, and susceptibility testing of infectious disease organisms in humans. Prerequisite: 069:158.

069:160 **Clinical Immunology and Molecular Diagnostics**
Theory, application, and evaluation of immunological components, principles, and methodologies used to assess immune dysfunction; theory and application of molecular diagnostic tools. Prerequisite: 069:150.

069:162 **Clinical Immunohematology I**
Introduction to theory, practical application, technical performance, and evaluation of blood bank procedures required for storage and transfusion of blood and blood components. Prerequisite: 069:150.

069:163 **Clinical Immunohematology II**
Clinical immunohematology for laboratory science. Prerequisite: 069:162.

069:164 **Phlebotomy for Clinical Laboratory Science**
Theory, practical application, technical performance, and evaluation of procedures used in collecting, handling, and processing blood specimens. Prerequisite: 069:150.

069:166 **Urine and Body Fluid Analysis**
Theory, practical application, technical performance, and evaluation of procedures used in analyzing urine and other body fluids, including cerebrospinal, synovial, serous, and amniotic fluids. Prerequisite: 069:150.

069:170 **Clinical Laboratory Management I**
Theory, practical application, technical performance, and evaluation of laboratory management principles and associated models; critical thinking, problem solving, leadership skills. Prerequisite: 069:150.

069:171 **Clinical Laboratory Management II**
Advanced theory, application, technical performance, and evaluation of laboratory management principles and associated models; critical thinking, problem solving, leadership skills. Prerequisite: 069:170.

069:205 **Medical Pathology I**
Mechanisms of disease, etiology, pathogenesis, epidemiology, major clinical manifestations of disease in organ systems. Prerequisite: M.D. enrollment, or graduate standing and consent of instructor.

069:206 **Medical Pathology II**
Mechanisms of disease, etiology, pathogenesis, epidemiology, major clinical manifestations of disease in organ systems. Prerequisites: 069:205 and M.D. enrollment, or graduate standing and consent of instructor.

069:211 **Research in Pathology**
Basic aspects of pathology or clinical patient material; emphasis on experimental design, methods, literature review, obtaining formal answers to specific questions. Prerequisite: M.D. enrollment, or graduate standing and consent of instructor.

069:220 **Seminar in Pathology**
Current research and literature. Repeatable. Prerequisite: pathology graduate standing.

069:240 **Topics in Laboratory Medicine and Pathology**
Issues in appropriate use of clinical laboratory and pathology resources in the primary care setting; case-based approach. Prerequisite: third- or fourth-year M.D. enrollment.

069:241 **Autopsy Pathology Clerkship**

069:245 **Hematopathology Clerkship**

069:246 **Surgical Pathology Clerkship**

069:247 **Blood Bank Clerkship**
069:260 Translational Histopathology 3 s.h.
Didactic sessions on human comparative histology, molecular and cellular pathology, and animal model applications; laboratory sessions on microscopy, histology, histotechnology, and immunohistochemistry, with group discussions of model papers; experience in scientific writing and oral presentation skills; for students who plan to investigate experimental models of human disease. Prerequisite: 156:201.

069:270 Pathogenesis of Major Human Diseases 3 s.h.
Critical analysis of pathogenesis models in a series of major human diseases; clinical presentation, analysis of cellular and molecular events leading to the disease, discussion of key papers. Prerequisite: 156:201.

069:272 Cancer Molecular Epidemiology Seminar 2 s.h.
Basic tumor biology and lab-based methods applied to development of translational approaches to prevention, early diagnosis, and treatment of human cancers. Prerequisite: consent of instructor. Same as 173:272.

069:288 Molecular and Cellular Biology of Cancer 3 s.h.
Fundamental aspects of oncology at the cellular and molecular levels; mechanisms of cancer initiation and progression, oncogene action, DNA damage and repair, carcinogenesis by radiation, chemicals, viruses; tumor immunology, anticancer therapies. Offered spring semesters of odd years. Prerequisites: strong basic science background and consent of instructor. Same as 077:288.

069:290 Medical Student Fellowships in Pathology (Externships) 0 s.h.
First-hand experience in autopsy, surgical and clinical pathology, teaching, and research to further understanding of disease mechanisms, normal and pathologic anatomy, laboratory use.

069:291 Warner Fellowship in Experimental Pathology 0 s.h.
One-year, full-time membership in established research laboratory in the Department of Pathology or collaborating laboratory. Prerequisite: M.D. enrollment.

069:998 Pathology on Campus arr.

069:999 Pathology off Campus arr.
The Department of Pediatrics provides a solid foundation for M.D. students and postgraduate trainees. It offers extensive opportunities for general pediatrics and subspecialties.

Affiliated programs add depth to the educational program in community pediatrics and primary care. The department is affiliated with the child and material health programs of the Bureau of Family Health, Iowa Department of Public Health; the University of Iowa regional Child Health Specialty Clinics and Center for Disabilities and Development; Blank Children's Hospital in Des Moines; and community sites.

The Department of Pediatrics is located in the University of Iowa Children's Hospital at University of Iowa Hospitals and Clinics. Inpatient and outpatient areas are adjacent to faculty offices.

M.D. Student Training

Didactic lectures and physical examination of the newborn, toddler, and older child provide M.D. students with their initial pediatric patient contact. This experience includes taking a history, performing a physical examination, appraisal of growth and development, nutrition, and symptomatology of newborns, toddlers, and adolescents.

For junior and senior medical students, the inpatient service provides training in the complex problems of disease and critical illness. Students participate in daily rounds involving general pediatrics and all subspecialties. Challenging and interesting cases are presented for diagnosis and treatment.

Outpatient experience, available in the junior clerkship and fourth-year electives, stresses principles and practices required for the maintenance of children's health, treatment of common general pediatric disorders, and the diagnosis and treatment of subspecialty ambulatory patients.
The pediatric inpatient service has approximately 120 beds, and more than 50,000 patients are seen each year in the general, specialty, continuity care, and field clinics and in the Emergency Treatment Center. The Center for Disabilities and Development provides resources for children with developmental disabilities, cerebral palsy, or mental retardation. The department maintains laboratories that perform both clinical and research studies.

## Pediatrics Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>070:002</td>
<td>Clinical Pediatrics</td>
<td>6 s.h.</td>
<td>Principles, practices of health maintenance and treatment of acute and chronic illnesses in children; emphasis on diagnosis and evaluation, nutrition, behavior problems, disorders affecting children; patient care, daily rounds, ward work. Prerequisite: third-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:013</td>
<td>Subinternship in Pediatrics: Blank Children's Hospital, Des Moines</td>
<td>arr.</td>
<td>Experience in the care of general pediatric inpatients; daily rounds and teaching by senior residents and faculty members; daily didactic conferences. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:014</td>
<td>Emergency Room Blank Children's Hospital, Des Moines</td>
<td>arr.</td>
<td>Pediatric emergencies and urgent care, proficiency in pediatric medicine procedures; expansion of basic knowledge. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:015</td>
<td>Neonatal Intensive Care Unit, Blank Children's Hospital</td>
<td>4 s.h.</td>
<td>Experience equivalent to intern on neonatal intensive care unit teaching service at Blank Children's Hospital, Des Moines; four-week rotation.</td>
</tr>
<tr>
<td>070:016</td>
<td>Pediatric Hematology/Oncology</td>
<td>arr.</td>
<td>Basic concepts of clinical approach to hematologic and oncologic problems in children and adolescents; primarily outpatient experience. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:017</td>
<td>Pediatric Neurology</td>
<td>arr.</td>
<td>Participation in outpatient and inpatient activities, teaching, morning ward rounds. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:019</td>
<td>Pediatric Cardiology</td>
<td>arr.</td>
<td>Participation in clinical activities; observation of cardiac catheterization; experience in cardiac auscultation, ECG, radiography; emphasis on physical diagnosis, approach to heart disease and murmurs in children. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:023</td>
<td>Developmental and Behavioral Pediatrics</td>
<td>4 s.h.</td>
<td>Normal developmental sequence of gestation and early childhood, impact of environmental influences; antecedents of developmental disabilities; methods to detect cognitive and motor delays in preschool children; long-term consequences of developmental disabilities for children, their families; advantages of interdisciplinary teamwork. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:025</td>
<td>Child Abuse and Neglect</td>
<td>4 s.h.</td>
<td>Hospital- and community-based multidisciplinary responses to child abuse and neglect; experience developing diagnostic skills to recognize, assess, and report cases of child abuse and neglect. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:027</td>
<td>Neonatology (NICU)</td>
<td>arr.</td>
<td>Experience caring for ill neonates, proficiency in using diagnostic tests and procedures; responsibility for care of several infants; reference and literature review, conferences, teaching, clinical rounds. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:028</td>
<td>Pediatric Inpatient Care Subinternship</td>
<td>arr.</td>
<td>Experience on pediatric inpatient team caring for patients ranging from infants through adolescents; evaluation, formulation of differential diagnoses, diagnostic workups, appropriate therapy programs. Prerequisite: fourth-year M.D. enrollment.</td>
</tr>
<tr>
<td>070:029</td>
<td>Critical Care (PICU)</td>
<td>4 s.h.</td>
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</tbody>
</table>
Direct care of critically ill children in a multidisciplinary medical/surgical/cardiac intensive care unit, under supervision of pediatric residents and staff; participation in educational activities and formal clinical rounds. Prerequisite: fourth-year M.D. enrollment.

070:030 Medical Genetics for the Senior Student
Participation in diagnostic, therapeutic problems; techniques for evaluation, appropriate counseling in genetic cases; conferences. Prerequisite: fourth-year M.D. enrollment.

070:033 Pediatric Gastroenterology
Diagnosis, management, treatment of diseases of gastrointestinal tract, liver, pancreas in children; ward rounds, consultations, clinics, diagnostic procedures, conferences. Prerequisite: fourth-year M.D. enrollment.

070:040 Infectious Disease Consults
Prerequisite: fourth-year M.D. enrollment.

4 s.h.

070:043 Pediatric Allergy
Experience in evaluating and treating respiratory and allergic diseases in infants, children, and adolescents. Prerequisite: fourth-year M.D. enrollment.

070:055 General Pediatric Outpatient Clinic
Work in general pediatric outpatient clinics with acutely or chronically ill patients and with well children. Prerequisite: fourth-year M.D. enrollment.

070:110 Medical Genetics
Gene structure and function, basic genetics concepts, application to problems in human disease. Offered fall semesters. Prerequisites: M.D. enrollment or graduate standing in related health field, and consent of instructor.

2 s.h.

070:201 Primary Care: Infants, Children, and Adolescents II
Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Prerequisite: (for 096:220) 096:219 or 096:280. Prerequisites: (for 070:201) 096:219 and 096:280. Same as 096:220.

3 s.h.

070:245 Evaluation of Children with ADHD and LD
Clinical experience in conducting pediatric neuropsychology examinations in the Pediatric Attention/Learning Disorders Clinic. Prerequisites: course on psychological testing (including IQ), graduate psychology standing (school, counseling, rehabilitation, clinical), and consent of instructor. Same as 07P:207.

arr.

070:247 Neuropsychology of Learning Seminar
Research and theory on varied approaches to learning disability; language disability, visual/perceptual disability, serial order and memory deficits. Prerequisites: 070:245 or 070:251, course on psychological testing including IQ, and consent of instructor.

arr.

070:251 Clinical Pediatric Neuropsychology
Learning and behavior disorders resulting from central nervous system dysfunction; clinical experience in assessment of cognitive, behavioral patterns. Prerequisite: consent of instructor.

arr.

070:252 Assessment of Attention Deficit Disorder
Participation in clinical, research, didactic work in evaluating children with attention deficit disorder. Prerequisite: experience in intellectual assessment of children.

3 s.h.

070:253 Assessment of Behavior Disorders
Experience in diagnostic and behavioral assessments of children with conduct disorders.

arr.

070:255 Autism Spectrum Disorders
Overview of autism spectrum disorders (ASDs), including autistic disorder, Asperger's disorder, other pervasive developmental disorders; ASD diagnoses and their etiology; tools used in assessing individuals with ASDs; common interventions for ASDs; resources for work with individuals who have ASDs. Prerequisite: consent of instructor.

2 s.h.

070:300 Pediatric Independent Study

arr.
070:333 Pediatric Intensive Care off Campus
Arranged by student and department. Prerequisite: fourth-year M.D. enrollment.

070:653 Adult and Pediatric Nephrology and Hypertension
Prerequisite: (for 070:653) fourth-year M.D. enrollment. Same as 078:653.

070:662 Medical and Pediatric Endocrinology
Prerequisite: (for 070:662) fourth-year M.D. enrollment. Same as 078:662.

070:998 Pediatrics on Campus
Prerequisite: fourth-year M.D. enrollment.

070:999 Pediatrics off Campus
Prerequisite: fourth-year M.D. enrollment.
Pharmacology

Interim head: Donna L. Hammond
Professors: Mario Ascoli, Timothy Brennan, Frank Faraci, Rory Fisher, Donna L. Hammond, Donald Heistad, Johannes Hell, Raymond Hohl, A. Kim Johnson, Ulla Kopp
Professors emeriti: Jeffrey Baron, Ranbir Bhatnagar, Gary R. Dutton, Gerald F. Gebhart, Herbert K. Proudfit, Thomas Shires, James Spratt, Thomas Tephly, Harold Williamson
Associate professors: Minnetta Gardinier, Barry Kasson, John Koland, Kathryn G. Lamping, Dawn E. Quelle, Frederick W. Quelle, Stefan Strack, Yuriy Usachev
Assistant professors: Songhai Chen, Mary Horne, D.P. Mohapatra, David Sheff
Graduate degrees: M.S., Ph.D. in Pharmacology
Web site: http://www.medicine.uiowa.edu/pharmacology

The Department of Pharmacology provides professional training in pharmacology for health science students and participates with other departments in educational and research activities such as the Medical Scientist Training Program, the Physician Scientist Training Program, the Molecular and Cellular Biology Program, the Neuroscience Program, the Holden Comprehensive Cancer Center, and the Iowa Cardiovascular Center.

The department was a pioneer in offering pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 071:120 Drugs: Their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions concerning use of drugs. Undergraduates interested in science careers may attend an eight-week summer research program that provides opportunities for outstanding students to conduct research in faculty laboratories.

Pre- and postdoctoral students can pursue research training in all areas of pharmacology in the department in preparation for career opportunities in academia, government, and industry.

Graduate Programs

The Department of Pharmacology offers graduate study programs leading to the M.S. and Ph.D. These programs include both didactic and research experience. Qualified students may pursue an M.S. in clinical pharmacology or a combined M.D./Ph.D. in the Medical Scientist Training Program.

Master of Science

The Master of Science in pharmacology requires a minimum of 30 s.h. of graduate credit. Core course requirements are as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>071:135</td>
<td>Principles of Pharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>071:203</td>
<td>Pharmacology Research</td>
<td>arr.</td>
</tr>
<tr>
<td>071:204</td>
<td>Pharmacology Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>071:250</td>
<td>Advanced Problem Solving in Pharmacological Sciences</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>071:302</td>
<td>Pharmacology for Graduate Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>072:153</td>
<td>Graduate Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>156:201</td>
<td>Fundamentals of Gene Expression</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:202</td>
<td>Fundamentals of Protein Regulation</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:203</td>
<td>Fundamentals of Dynamic Cell Processes</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:204</td>
<td>Biostatistics for Biomedical Research</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Students also are expected to gain maximum experience in laboratory research while completing their course work. Satisfactory preparation and oral defense of a thesis based on the student's own research are required for completion of the program.

Doctor of Philosophy

The Doctor of Philosophy in pharmacology requires a minimum of 72 s.h. of graduate credit. Core course requirements are as follows.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>071:135</td>
<td>Principles of Pharmacology</td>
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<tr>
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<td>arr.</td>
</tr>
<tr>
<td>071:204</td>
<td>Pharmacology Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>071:209</td>
<td>Receptors and Signal Transduction</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>071:250</td>
<td>Advanced Problem Solving in Pharmacological Sciences</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>071:302</td>
<td>Pharmacology for Graduate Students</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>072:153</td>
<td>Graduate Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>156:201</td>
<td>Fundamentals of Gene Expression</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>156:202</td>
<td>Fundamentals of Protein Regulation</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
Individual faculty research advisors may require additional courses.

During the first semester in the program, students are required to work in two different faculty laboratories before selecting a laboratory in which to pursue thesis research. Students then are expected to gain maximum laboratory research experience while completing course work. The Ph.D. comprehensive examination (written and oral) is given at the end of the fourth semester. Satisfactory preparation and oral defense of the thesis complete the program.

There is no departmental foreign language requirement.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1200 on the Graduate Record Examination (GRE) General Test. They should have completed undergraduate courses in chemistry, biology, biochemistry, and mathematics.

Admission to the graduate programs is determined by the faculty after receipt of a completed formal application and interview (if appropriate) by faculty members or other designated individuals. Each application is reviewed individually. Some standard admission criteria may be set aside for applicants who possess outstanding credentials in other areas.

Financial Support

The department provides all Ph.D. students and some M.S. students with financial support in the form of stipends and tuition support. Support is renewed annually based on satisfactory progress toward meeting degree requirements.

Pharmacology Courses

071:105 Pharmacology for Health Sciences: Medical
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 050:240 and 099:163, or equivalents; and M.D. enrollment.

071:111 Pharmacology for Dental Students
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered spring semesters. Prerequisites: 072:152 and 099:161, or consent of instructor; and D.D.S. enrollment.

071:115 Pharmacology for Health Sciences--Nurse Anesthetist
Principles of pharmacology; pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 060:270 or 096:270 or equivalents, and enrollment in Anesthesia Nursing Program.

071:120 Drugs: Their Nature, Action, and Use
Principles of drug action, toxicity; sedatives, stimulants, hallucinogens, narcotics, over-the-counter agents, antibiotics, oral contraceptives. Offered spring semesters. Prerequisite: closed to Pharm.D. students.

071:125 Pharmacology for Health Sciences: Physician Assistant Students
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 072:164 and 099:164, or consent of instructor; and Physician Assistant Program enrollment.

071:130 Drug Mechanisms and Actions
Introduction to principles of pharmacology, pharmacologic actions of drugs. Offered spring semesters. Prerequisites: undergraduate biochemistry and physiology courses, or consent of instructor.

071:135 Principles of Pharmacology
Principles of drug action, disposition; statistical analysis. Offered spring semesters. Prerequisite: consent of instructor.

071:180 Pharmacology for Pharmacy Students I
Principles of pharmacology, toxicology; drug and toxic mechanisms; systemic and organ-specific pharmacologic and toxic responses. Offered spring semesters. Prerequisite: first-year Pharm.D. enrollment, or graduate standing and consent of instructor.
Pharmacology for Pharmacy Students II 4 s.h.
Continuation of 071:180. Offered fall semesters. Prerequisite: second-year Pharm.D. enrollment, or graduate standing and consent of instructor.

Neurotransmitter Receptors and Ion Channels 3 s.h.
Biochemistry, cell biology, physiology, and pharmacology of ionotropic and metabotropic neurotransmitter receptors and ion channels, neuronal excitability, and synaptic transmission. Offered spring semesters. Prerequisite: consent of instructor.

Pharmacology Research arr.
Prerequisite: consent of department head.

Pharmacology Seminar 1 s.h.
Prerequisite: consent of department head.

Receptors and Signal Transduction 3 s.h.
Major receptor families: G-protein coupled receptors, ligand-regulated transmembrane enzymes, ligand-regulated ion channels, the steroid receptor superfamily; emphasis on description, interpretation of specific experiments, experimental strategies underlying current research. Offered spring semesters of even years. Prerequisites: (for 071:209) 072:153 and 156:201, or equivalents. Prerequisites: (for 072:209) 099:130 or equivalent, and consent of course director. Prerequisites: (for 132:209) medical physiology course and consent of instructor. Same as 072:209, 132:209.

Special Topics in Pharmacology arr.
Prerequisite: consent of department head.

Topics in Neuropharmacology 1 s.h.
Recent advances in neuropharmacology, developmental neurobiology, neuroendocrinology, related neurosciences. Prerequisite: consent of instructor.

Topics in Molecular Pharmacology 1 s.h.
Recent advances in molecular pharmacology; receptor, postreceptor events in stimulus coupling. Prerequisite: consent of instructor.

Topics in Pain Analgesia 1 s.h.
Recent advances in pain research, therapy. Prerequisite: consent of instructor.

Advanced Problem Solving in Pharmacological Sciences 1 s.h.
Discussion of methodologies, strategies, and approaches commonly used to solve pharmacological sciences problems; use of interpersonal problem-solving skills to develop experimental study plans for solving contemporary scientific problems in pharmacology.

Mechanisms of Pain Transmission 3 s.h.
Anatomical, physiological, and pharmacological mechanisms underlying peripheral and central neuronal processing of pain; emphasis on neuronal changes that occur during pathological conditions such as inflammation/arthritis, peripheral neuropathy. Offered fall semesters of even years. Same as 101:277, 132:277.

Pharmacology for Graduate Students 6 s.h.
Principles of pharmacology, pharmacologic actions of drugs, correlation with therapeutic uses. Offered fall semesters. Prerequisites: 072:153 and 156:201, or equivalents; and consent of instructor.
Physical Therapy and Rehabilitation Science

Director: Richard K. Shields
Professors: Annunziato Amendola (Orthopaedics and Rehabilitation), Thomas Cook (Occupational and Environmental Health), Warren Darling (Integrative Physiology), Richard K. Shields, Kathleen Sluka
Professors emeriti: David H. Nielsen, Gary L. Smidt, Gary L. Soderberg
Associate professors: David Asprey (Physician Assistant Program), Kelly Cole (Integrative Physiology), H. John Yack
Adjunct associate professor: Bryon Ballantyne
Clinical associate professor: Joseph Chen (Orthopaedics and Rehabilitation)
Assistant professors: Laura Frey Law, Susanne M. Morton, Glenn N. Williams, Brian R. Wolf (Orthopaedics and Rehabilitation)
Adjunct assistant professor: Pamela A. Duffy
Lecturer: Byron Bork
Adjunct lecturer: Donald Shurr
Associates: Karla Laubenthal, Erin Pazour, Kelly Sass, Carol Vance, David Williams
Adjunct associates: Lisa Ainsworth, Rhonda Barr, Kathryn Bewyer, Kim Eppen, Julie Fitzpatrick, Jerry F. Gilson, James Holte, Melanie House, Patrick Johnston, Carol Kelderman, Janine Kelly, Lisabeth Kestel, Ken Leo, Joseph A. Leone, Mary Milavetz, Bruce Miller, David Reese III, Elayne Sexsmith, Michael Shaffer
Graduate degrees: D.P.T.; M.A. in Physical Therapy, Ph.D. in Physical Rehabilitation Science
Web site: http://www.healthcare.uiowa.edu/PhysicalTherapy

Physical therapists provide services to patients and clients who have impairments, functional limitations, disabilities, pain, or changes in physical function resulting from injury, disease, or other causes. Physical therapists practice and collaborate with a variety of health professionals. In the area of health promotion and wellness, they provide screening examinations, prescribe fitness programs, and educate the public regarding healthy lifestyles. Research, teaching, consultation, and administration also are parts of a physical therapist's professional role.

A wide variety of opportunities exist for professional practice in inpatient, outpatient, and community-based settings. Examples include practice in general or specialized hospitals, programs for children with disabilities, private physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, home health agencies, school systems, fitness centers, and athletic facilities. Research and teaching careers in academic institutions are available for those who earn a Ph.D. in rehabilitation science.

The Physical Therapy and Rehabilitation Science Program is located in the Carver College of Medicine on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. The program has eight state-of-the-art independent research laboratories and is well equipped for classroom and laboratory instruction and innovative research. Students have access to faculty members in the basic sciences and medicine, basic sciences courses, clinical specialty expertise, and innovative learning experiences associated with a medical college environment.

Graduate Programs

The Physical Therapy and Rehabilitation Science Program offers the Doctor of Physical Therapy (the entry-level professional degree), Doctor of Philosophy in physical rehabilitation science, and Master of Arts in physical therapy (for students working toward the Ph.D.). The D.P.T. program admits 36 students each year. Around 20 physical therapists are enrolled in the Ph.D. program each year.

Doctor of Physical Therapy

The Doctor of Physical Therapy (D.P.T.) professional program requires a minimum of 101 s.h. and is completed in two and one-half years. The program is fully accredited by the Commission on Accreditation in Physical Therapy Education. Satisfactory completion of the professional program qualifies candidates to take the National Physical Therapy Examination for licensure to practice. The minimum passing score on the exam is the same in all jurisdictions.

Technical Standards for Graduation

Doctor of Physical Therapy graduates must possess and demonstrate the physical and cognitive skills and character attributes required to provide physical therapy services in a broad variety of clinical situations and environments. All D.P.T. candidates must perform, with or without reasonable accommodation, the following skills safely, effectively, efficiently, and in compliance with the legal and ethical standards set by the American Physical Therapy Association Code of Ethics and Standards of Practice.

- Communicate effectively through appropriate verbal, nonverbal, and written communication with patients, families, and others;
- Demonstrate ability to apply universal precautions;
- Utilize appropriate tests and measures in order to perform a physical therapy examination; examples include, but are not limited to, examination and evaluation of cognitive/mental status, vital signs, skin and vascular integrity, wound status, endurance, segmental length, girth, volume, sensation, strength, tone, reflexes, movement patterns, coordination, balance, developmental stage, soft tissue, joint motion/play, cranial and peripheral nerve function, posture, gait, functional abilities, assistive devices fit/use, psychosocial needs, and the pulmonary system;
- Demonstrate the ability to reach diagnostic and therapeutic judgments through analysis and synthesis of data.
gathered during patient/client examination in order to develop an appropriate plan of care;
- perform fully, or in a reasonably independent manner, physical therapy interventions appropriate to the patient's status and desired goals;
- apply teaching/learning theories and methods in health care and community environments;
- accept criticism and respond by appropriate behavior modification;
- possess the perseverance, diligence, and consistency to complete the physical therapy curriculum and enter the practice of physical therapy.

Applicants with health conditions or disabilities who need accommodation to meet the technical standards for graduation should contact the University's Student Disability Services office.

Curriculum

D.P.T. students earn the required 101 s.h. by completing the following curriculum. Students have the option to earn a total of 3 s.h. in electives.

First Summer Session

101:140 Introduction to Physical Therapy Practice 2 s.h.
101:141 Principles of Physical Therapy I 2 s.h.
101:205 Health Promotion and Wellness 3 s.h.

First Semester (Fall)

060:108 Human Anatomy 5 s.h.
069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
101:120 Professional Issues and Ethics 1 s.h.
101:142 Principles of Physical Therapy II 2 s.h.
101:189 Clinical Education I 1 s.h.
101:209 Surface Anatomy 1 s.h.
101:210 Kinesiology and Pathomechanics 4 s.h.
101:235 Case-Based Learning I 1 s.h.

Second Semester (Spring)

060:234 Medical Neuroscience 4 s.h.
101:131 Therapeutic Physical Agents 2 s.h.
101:185 Musculoskeletal Therapeutics I 3 s.h.
101:190 Clinical Education II 1 s.h.
101:201 Applied Clinical Medicine 2 s.h.
101:206 Cardiopulmonary Therapeutics 3 s.h.
101:236 Case-Based Learning II 1 s.h.
Elective (optional) 1 s.h.

Second Summer Session

101:119 Physical Therapy Management and Administration I 2 s.h.
101:143 Selected Topics in Physical Therapy Practice 2 s.h.
101:176 Pharmacology for Physical Therapists 3 s.h.
101:194 Clinical Internship 3 s.h.

Third Semester (Fall)

101:122 Psychosocial Aspects of Patient Care 1 s.h.
101:133 Pain Mechanisms and Treatment 2 s.h.
101:134 Physical Therapy Management of Integumentary System 2 s.h.
101:170 Prosthetics and Orthotics 2 s.h.
101:202 Musculoskeletal Therapeutics II 3 s.h.
101:224 Principles of Motor Control 4 s.h.
101:237 Service Learning I 1 s.h.
101:248 Research in Physical Therapy 2 s.h.
Elective (optional) 1 s.h.
Fourth Semester (Spring)

101:121 Physical Therapy Management and Administration II  
101:151 Progressive Functional Exercise  
101:172 Radiology/Imaging for Physical Therapists  
101:173 Differential Diagnosis in Physical Therapy  
101:191 Clinical Education III  
101:200 Pediatric Physical Therapy  
101:203 Musculoskeletal Therapeutics III  
101:225 Neuromuscular Therapeutics  
101:238 Service Learning II  
101:251 Critical Inquiry in Physical Therapy I  
Elective (optional)  

Third Summer Session

101:194 Clinical Internship  

Fifth Semester (Fall)

101:194 Clinical Internship  
101:252 Critical Inquiry in Physical Therapy II  

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They must have completed a baccalaureate degree from an accredited institution in the United States, or anticipate completing the degree before enrolling in the D.P.T. program. They must have a cumulative g.p.a. of at least 3.00 and must have completed the following prerequisite course work, preferably with a g.p.a. of at least 3.00. All science courses must include the appropriate laboratory instruction. The prerequisite courses must have been taken for a letter grade. Credit awarded through advanced placement testing may be applied only to the mathematics requirement.

**Biological sciences:** a complete introductory course in principles of general biology or zoology, and advanced course work in biology or zoology (for which an introductory course is prerequisite) equivalent to 12 s.h.

**Physics:** a complete introductory course equivalent to 8 s.h.

**Chemistry:** a complete introductory course equivalent to 8 s.h.

**Physiology:** a systemic human physiology course equivalent to 3 s.h.

**Psychology:** courses equivalent to 6 s.h.

**Mathematics:** a college-level mathematics course, at the level of trigonometry or higher, equivalent to 3 s.h.

**Statistics:** a statistical methods course equivalent to 3 s.h.

The program recommends that applicants have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination (GRE) General Test. They must take the test early enough for their scores to be received by the University in time for the December 1 application deadline.

Applications are submitted online through the Physical Therapist Centralized Application Service (PTCAS). PTCAS allows applicants to use a single application and one set of materials to apply to multiple physical therapy programs. Once the application portfolio is complete, PTCAS forwards it to The University of Iowa.

Personal interviews are required of applicants selected for consideration by the admissions committee. Interviews are conducted at The University of Iowa. The physical therapy admissions committee selects applicants who appear to be best qualified for the study and practice of the profession. Some preference is given to Iowa residents.

Applications are accepted from July 15 to December 1 for entry the following summer. Prospective students should apply as early as possible.

**EARLY ADMISSION**

The Doctor of Physical Therapy early admission plan is available to outstanding applicants. Generally, applicants have a g.p.a. of 3.75 or higher and a combined verbal and quantitative score above 1100 on the Graduate Record Examination (GRE) General Test. Application materials are the same as those for regular admission. Application
deadline is October 1; applicants are notified of admission by December 1. Those who are interviewed but are not selected for early admission are automatically placed in the final general applicant pool. Contact the Physical Therapy and Rehabilitation Science Program for more information.

Background Checks
Enrollment in the Doctor of Physical Therapy program is contingent on a successful criminal background check. Drug screening may be required for some clinical rotations.

Expenses
Applicants admitted to the D.P.T. program must make an advance tuition payment of $300, which is forfeited if the applicant does not enroll. In addition to paying University tuition and fees, students are assessed laboratory fees for the human anatomy and medical neuroscience courses and are responsible for purchasing lab coats, patient evaluation kits, and course syllabi.

All students are required to comply with the pre-entry and periodic health screening program developed by Student Health Service in cooperation with University of Iowa Hospitals and Clinics. Students must pay for the health screenings. Students also are required to have health insurance.

Ph.D. in Physical Rehabilitation Science

The Doctor of Philosophy in physical rehabilitation science requires a minimum of 72 s.h. of graduate credit. The program is designed to advance the student's ability to independently develop and carry out research that establishes the scientific basis for prevention, evaluation, and treatment of impairments, functional limitations, and disability. The curriculum is flexible enough to accommodate research focusing on basic, applied, or clinical studies in the rehabilitation sciences. Students have access to the program's research laboratories (see "Research Facilities" later in this section).

Graduates who complete the program are prepared for academic appointments that emphasize research, scholarship, and teaching. They possess:

- theoretical and scientific knowledge to perform basic, applied, or clinical-level original research that leads to scientific presentations, publication in peer-reviewed journals, and competition for extramural funding through scientific grant writing;
- breadth of knowledge in exercise physiology, biomechanic, neuroscience, or motor control specialty areas as they relate to impairment, functional limitation, and disability; and
- theoretical and practical skills required for college or university teaching at the professional entry and advanced graduate levels.

Curriculum
Ph.D. students complete a minimum of 72 s.h. beyond the baccalaureate. Each student and his or her faculty advisor develop an individualized study plan. A preliminary study plan is developed within the first 9 s.h. of graduate study; a final plan is submitted to the Graduate College when the Ph.D. comprehensive examination is scheduled.

To ensure breadth of knowledge, all students complete specific core, research, and scientific specialty area content courses. Elective courses are selected to provide in-depth study of the specialty; they are complemented by an advanced seminar course specific to the student's specialty and taken in preparation for the comprehensive examination.

Students must satisfactorily complete the comprehensive examination, which is taken after all required course work is completed. Doctoral study culminates with 12 s.h. of thesis research and an oral examination.

GENERAL CORE REQUIREMENT

Ph.D. students must complete the following core requirements. Exception: the capstone course (101:300 Rehabilitation Research Capstone Project) is recommended but not required for students who enter the program with a master's or doctoral-level degree; however, it is required for all students who enter the program with a bachelor's degree.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>07P:385</td>
<td>Teaching and Learning in Higher Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>101:212</td>
<td>Biomedical Instrumentation and Measurement</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>101:220</td>
<td>Seminar in Rehabilitation Science (taken twice)</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>101:280</td>
<td>Teaching Practicum</td>
<td>arr.</td>
</tr>
<tr>
<td>101:300</td>
<td>Rehabilitation Research Capstone Project</td>
<td>arr.</td>
</tr>
<tr>
<td>101:326</td>
<td>Scientific Writing in Rehabilitation Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>650:270</td>
<td>Principles of Scholarly Integrity</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>
171:161 Introduction to Biostatistics  
or  
22S:102 Introduction to Statistical Methods  

3 s.h.

171:162 Design and Analysis of Biomedical Studies  
or  
22S:148 Intermediate Statistical Methods  

4 s.h.

Research requirement

Students complete at least 24 s.h. from the following.

101:214 Advanced Seminar in Rehabilitation Science  
101:284 Practicum in Research  
101:301 Thesis: Rehabilitation Science  
101:325 Independent Study  
101:327 Research in Rehabilitation Science  

3 s.h.  
arr.  
12 s.h.  
arr.  
arr.

SPECIALTY Content REQUIREMENT

Each student must complete at least 9 s.h. in his or her scientific specialty area. Students may choose courses from the following list, but other courses suited to the student's background knowledge and interest area are considered.

Physical Therapy

101:210 Kinesiology and Pathomechanics  
101:224 Principles of Motor Control  
101:275 Analysis of Sensori-Motor Systems in Health and Disease  
101:277 Mechanisms of Pain Transmission  
101:285 Biomechanical Analysis in Rehabilitation  

4 s.h.  
4 s.h.  
3 s.h.  
3 s.h.  
3 s.h.

Integrative Physiology

027:141 Exercise Physiology  
027:145 Cardiovascular Physiology  
027:155 Skeletal Muscle Biology  
027:160 Motor Control I: Neurophysiological Basis  
027:197 Biomechanics of Human Motion  
027:314 Seminar in Motor Control  

3 s.h.  
3 s.h.  
3 s.h.  
3 s.h.  
4 s.h.  
1 s.h.

Pharmacology

071:182 Neurotransmitter Receptors and Ion Channels  
071:235 Topics in Pain Analgesia  
071:250 Advanced Problem Solving in Pharmacological Sciences  

3 s.h.  
1 s.h.  
1 s.h.

Neuroscience

132:180 Fundamental Neurobiology  
132:234 Medical Neuroscience  
132:235 Neurobiology of Disease  

4 s.h.  
4 s.h.  
3 s.h.

Epidemiology

173:290 Intervention and Clinical Trials  

3 s.h.

Occupational and Environmental Health

175:190 Occupational Ergonomics I  

3 s.h.
Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. They should have a cumulative g.p.a. of at least 3.00 and a combined verbal and quantitative score of at least 1100 on the Graduate Record Exam (GRE) General Test. A minimum of two years of clinical experience is desirable.

Applicants whose first language is not English must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Application materials must include a complete Graduate College application form, test scores, transcripts, three letters of recommendation, and a statement of purpose. Completed applications should be sent to the Physical Therapy and Rehabilitation Science Program.

Personal interviews are required of all applicants selected for consideration by the admissions committee. On-campus interviews are preferred, but telephone interviews may be substituted when necessary.

Application deadlines are October 15 for spring semester entry (notification by December 15); March 15 for summer entry (notification by May 15); and May 15 for fall semester entry (notification by July 15).

Financial Support

A number of research assistantships are available for Ph.D. students. Faculty advisors provide guidance for students seeking external scholarship support through foundations and federal programs that support Ph.D. training.

Research Facilities

The program's state-of-the-art research facilities include the Orthopedic Gait Analysis Laboratory and a spinal cord research laboratory at University Hospitals and Clinics; the Neuromuscular Research/Motor Control Laboratory; the Musculoskeletal Biomechanics and Sports Medicine Research Laboratory; the Neurobiology of Pain Laboratory; the Neural Control of Movement Laboratory; and the Neuromuscular Biomechanics Laboratory. Use of other laboratories may be arranged.

Physical Therapy and Rehabilitation Courses

101:119 Physical Therapy Management and Administration I 2 s.h.
The changing U.S. health care system; access to physical therapy services, reimbursement to health care providers, mechanisms for controlling costs while providing quality care; clinical vignettes, small group problem solving. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:120 Professional Issues and Ethics 1 s.h.
Evolution of physical therapy and rehabilitation science as a profession; contemporary issues in education and practice; ethical theory and approaches to analyzing and acting on ethical problems; professional and peer relationships. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:121 Physical Therapy Management and Administration II 1 s.h.
Principles of management in physical therapy practice; historical perspective, current health care environment; business principles; marketing, managing risk, medical/legal concerns, preparing for the future. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.
<table>
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<tr>
<th>Course Number</th>
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<tbody>
<tr>
<td>101:122</td>
<td>Psychosocial Aspects of Patient Care</td>
<td>1 s.h.</td>
</tr>
<tr>
<td></td>
<td>Emotional reactions to disability, psychosocial aspects of disability as they relate to patient-physical therapist interaction; specific problems of the angry, non-compliant, or chronic-pain patient; complementary roles of other health professionals; cultural competence in professional behavior and patient treatment; importance of holistic health care. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>101:131</td>
<td>Therapeutic Physical Agents</td>
<td>2 s.h.</td>
</tr>
<tr>
<td></td>
<td>Theoretical and practical applications for safe, effective use of physical agents (superficial and deep heat, cold, hydrotherapy), electrotherapeutic modalities (biofeedback, NMES, TENS, iontophoresis); massage and soft tissue mobilization; emphasis on problem solving, clinical decision making. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
<td></td>
</tr>
<tr>
<td>101:133</td>
<td>Pain Mechanisms and Treatment</td>
<td>2 s.h.</td>
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<td>Introduction to basic science mechanisms, assessment, and management of pain; basic science mechanism involved in transmission and perception of painful stimuli after tissue injury, assessment and physical therapy management of pain; emphasis on scientific principles and published literature to support treatment techniques. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:134</td>
<td>Physical Therapy Management of Integumentary System</td>
<td>2 s.h.</td>
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<td>Overview of physical therapy examination and management of the integumentary system; wound pathology, diagnosis associated with the integumentary system, inflammation and repair, examination and reexamination techniques, documentation, clinical decision making, lecture and laboratory formats; interventions, including patient/client information, physical agents, electrotherapy, wound dressing. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:140</td>
<td>Introduction to Physical Therapy Practice</td>
<td>2 s.h.</td>
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<td>Lectures, case presentations, and group activities using the Guide to Physical Therapist Practice; elements of the patient/client management model, concepts of the disablement model, preferred practice patterns as applied in clinical problems; importance of professionalism, professional socialization; introduction to evidence-based practice; competence in medical terminology. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:141</td>
<td>Principles of Physical Therapy I</td>
<td>2 s.h.</td>
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<td>Patient management skills: interviewing, medical history taking, vital signs, positioning, draping, transfers, body mechanics, assisted gait, wheelchairs, and negotiation of architectural barriers. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:142</td>
<td>Principles of Physical Therapy II</td>
<td>2 s.h.</td>
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<td>Continuation of 101:141; expansion of existing skills and provides new learning experiences in documentation, assessment of joint range of motion/goniometry, manual muscle testing, preambulatory intervention strategies, gait analysis; musculoskeletal, neuromuscular, and integumentary systems review. Prerequisites: 101:141, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:143</td>
<td>Selected Topics in Physical Therapy Practice</td>
<td>2 s.h.</td>
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<td>Specialty topics in physical therapy, such as women's health, aquatic therapy, patient care across the lifespan, alternative or new treatments; guest lectures, lab component.</td>
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<tr>
<td>101:151</td>
<td>Progressive Functional Exercise</td>
<td>2 s.h.</td>
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<td>Therapeutic exercise options (e.g., isometrics, isotonics, isokinetics, plyometrics, endurance exercises, stretching exercises) and training principles; application to functional activities, including those of daily living, work, recreation, and sport; laboratory component. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:170</td>
<td>Prosthetics and Orthotics</td>
<td>2 s.h.</td>
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<td>Physical therapy management and assessment of patients in need of prosthetic and orthotic devices; principles and components of prosthetic and orthotic design and use. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.</td>
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<tr>
<td>101:172</td>
<td>Radiology/Imaging for Physical Therapists</td>
<td>2 s.h.</td>
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Basic principles and procedures for acquisition and interpretation of radiology and imaging in clinical practice and research; plain film radiographs, CT, MRI, other common imaging modalities; case-based, multidisciplinary approach. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:173 Differential Diagnosis in Physical Therapy 2 s.h.
Use of physical therapy examination and evaluation skills to diagnose physical therapy problems; focus on use of good clinical decision-making skills when analyzing a patient's history and administering physical therapy tests and measures to confirm or rule out differential diagnoses; components of the medical examination; importance of collaboration between therapists and other health professionals; interactive case studies presented by clinical experts. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:176 Pharmacology for Physical Therapists 3 s.h.
Contemporary pharmacology; overview of basic pharmokinetic and pharmacodynamic principles; relation of drug therapy to therapeutic interventions provided by physical therapists; small group clinical case presentations. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:185 Musculoskeletal Therapeutics I 3 s.h.
Musculoskeletal techniques and biomechanical principles applied to assessment and evaluation of common orthopedic problems of the spine; problem solving, case-study approach to clinical methods, skill acquisition. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:189 Clinical Education I 1 s.h.
Integrated clinical experiences in area physical therapy clinics; overview of the diverse nature of practice through half- or full-day experience; basic skills in examination, intervention, documentation. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:190 Clinical Education II 1 s.h.
Continuation of 101:189; integrated half-day clinical experiences. Prerequisites: 101:189, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:191 Clinical Education III 1 s.h.
Two-week, full-time clinical experience in physical therapy clinics in Iowa, under the guidance of physical therapists; theory and practice of physical therapy procedures, competence building in basic skills. Prerequisites: 101:190, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:194 Clinical Internship arr.
Full-time clinical education divided among varied settings; development of competence in independent examination, evaluation, and treatment of patients under supervision of clinical faculty. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:200 Pediatric Physical Therapy arr.
Preparation for physical therapy practice in pediatric settings using interdisciplinary family-centered practice; normal and abnormal development, standardized assessment, service-delivery settings, interventions, management strategies specific to pediatrics. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:201 Applied Clinical Medicine 2 s.h.
Pathological disorders frequently encountered by physical therapists in clinical practice, addressed by physicians and health professionals who are not physical therapists; physical therapy management. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:202 Musculoskeletal Therapeutics II 3 s.h.
Pathology, assessment, management of orthopedic disorders of the upper quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions. Prerequisites: 101:185, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

### 101:203 Musculoskeletal Therapeutics III 4 s.h.
Pathology, assessment, management of orthopedic disorders of the lower quarter; problem-solving approach to evaluation and management of patients with musculoskeletal conditions. Prerequisites: 101:202, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.
101:205 Health Promotion and Wellness 3 s.h.
Overview of health promotion, fitness, and wellness strategies, including information on levels of health promotion, risk assessment, applied physiology (skeletal muscle, energy metabolism, and physiological responses to exercise), exercise testing and training guidelines, body composition assessment, and development of individual weight management and exercise training programs; classroom and laboratory experiences. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:206 Cardiopulmonary Therapeutics 3 s.h.
Cardiorespiratory anatomy, physiology, and application of basic concepts, techniques in management of patients with acute and chronic cardiac, pulmonary disorders; laboratories. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:209 Surface Anatomy 1 s.h.
Laboratory teaching activities that parallel the human anatomy course; observation, palpation, and problem solving skills; upper- and lower-limb, head and neck, thorax, and abdomen. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:210 Kinesiology and Pathomechanics 4 s.h.
Normal and pathological movement based on understanding of muscle mechanics, segment and joint mechanics, muscle function; instructor- and student-centered learning experiences; EMG laboratories. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:212 Biomedical Instrumentation and Measurement 4 s.h.
Introduction to biomedical instrumentation and measurement, with focus on understanding sources of error and noise in biomedical research applications; basic circuit analysis, calibration of measurement tools, A/D conversion, digital filtering; lab components. Offered fall semesters of even years.

101:214 Advanced Seminar in Rehabilitation Science arr.
Current status of research for biological, mechanical, psychological components pertinent to cardiopulmonary, musculoskeletal, neuromuscular areas of rehabilitation science; preparation for comprehensive exam.

101:220 Seminar in Rehabilitation Science 1 s.h.
Exploration of research related to rehabilitation science; lectures by faculty, graduate students, and guest scholars with expertise in areas relevant to rehabilitation science (e.g., neuroscience, physiology, medicine, engineering, pharmacology, integrated physiology).

101:224 Principles of Motor Control 4 s.h.
Sensorimotor mechanisms involved with normal and abnormal neuromuscular systems function; skeletal muscle properties/plasticity, muscle fatigue, neural mechanisms of muscle strengthening, spinal circuitry, simple and complex reflexes, spasticity, rigidity, posture control/balance, motor learning, applied neurological assessment of pathological conditions, such as stroke, SCI. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:225 Neuromuscular Therapeutics 3 s.h.
Final in a three-course series; knowledge of medical neuroscience and motor control concepts integrated with motor learning principles to the practice of neurological physical therapy; various therapeutic approaches to treating central nervous system (CNS) dysfunction of adult onset; evaluation and treatment techniques. Prerequisites: 101:224, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:235 Case-Based Learning I 1 s.h.
Small group case study seminars and simulated patient instructor learning experiences; clinical problems coordinated with concurrent courses; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. First in a two-course sequence. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:236 Case-Based Learning II 1 s.h.
Small group case study seminars and simulated patient instructor learning experiences; clinical problems coordinated with concurrent course work; student-centered, problem-based learning format with emphasis on evidence-based practice objectives. Second in a two-course sequence. Prerequisites: 101:235, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:237 Service Learning I
Service-learning work experience with one of four community partners (Miracles in Motion, Camp Courageous, Elder Services, Pathways Adult Daycare); students develop individual learning goals for the semester-long experiences; classroom reflection on service activities, experiences with the elderly and/or disabled, and on social responsibility, advocacy, and professionalism in physical therapy; written reflection assignments. First in a two-course sequence. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:238 Service Learning II
Service-learning work experience with a community partner; learning goals, papers, journals, final project poster presentation. Prerequisites: 101:237, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:248 Research in Physical Therapy
Topics relevant to evidence-based practice and research design; identification of appropriate questions for research and clinical applications, location and evaluation of available evidence, identification of issues that affect validity of research designs, interpretation of basic statistical analyses. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:251 Critical Inquiry in Physical Therapy I
Experience conducting group research projects under faculty supervision; data collection and analysis, manuscript preparation, oral defense of research findings during a formal poster presentation. Prerequisites: 101:248, and Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:252 Critical Inquiry in Physical Therapy II
Principles and procedures learned in 101:248 and 101:251 applied to a clinical setting; students write and present a case report with an evidence-based practice focus, using a clinical case from their final internships. Prerequisite: Physical Therapy and Rehabilitation Science Program enrollment or consent of instructor.

101:260 Advanced Health Promotion and Cardiopulmonary Therapeutics
Anatomical, physiological principles applied to health care continuum, including wellness programs, cardiac and pulmonary rehabilitation; emphasis on body composition and weight control, exercise and cardiorespiratory adaptations to training; laboratories. Offered spring semesters. Prerequisite: consent of instructor.

101:275 Analysis of Sensori-Motor Systems in Health and Disease
Neuropsychological mechanisms underlying posture, movement in normal and pathologic conditions; systems approach to neuromuscular system function, including skeletal muscle plasticity, muscle fatigue, neurological adaptations to strengthening, spinal circuitry, complex reflexes, spasticity, rigidity, posture/balance, motor learning; specific applications to CNS disease states (SCI, stroke, degenerative diseases). Offered fall semesters. Prerequisite: consent of instructor.

101:277 Mechanisms of Pain Transmission
Anatomical, physiological, and pharmacological mechanisms underlying peripheral and central neuronal processing of pain; emphasis on neuronal changes that occur during pathological conditions such as inflammation/arthrosis, peripheral neuropathy. Offered fall semesters of even years. Same as 071:277, 132:277.

101:280 Teaching Practicum
Individual instruction, observation, experimentation in teaching, guidance, analysis of evaluation processes in Physical Therapy and Rehabilitation Science Program.

101:282 Clinical Educational Practicum
Individualized clinical experience in selected physical therapy setting; instructor-student development of objectives, learning contract.

101:284 Practicum in Research
Laboratory experiences connected with investigative process; individual instruction, observation, activities in methodological development, data acquisition, data analysis aspects of research.

101:285 Biomechanical Analysis in Rehabilitation 3 s.h.
Assessment of pathological movement through human movement analysis techniques, including link segment modeling and analysis, mechanical energy and power analysis, electromyography and muscle modeling.

101:300 Rehabilitation Research Capstone Project arr.
Specific phases of the research process; development of a research question and associated hypotheses, collection and analysis of data, interpretation and discussion of the information's meaning; presentation to sponsoring mentor's laboratory/program, and written document.


101:325 Independent Study arr.
Problem-solving experience in physical therapy; commensurate with student's interest, ability.

101:326 Scientific Writing in Rehabilitation Science 3 s.h.
Knowledge of and experience related to scientific writing, critical review of scientific literature, publication in the biomedical sciences, thesis/dissertation writing, grant writing, scientific presentation, writing used in academic and scientific careers.

101:327 Research in Rehabilitation Science arr.
Placement of physical therapy on sound scientific base; therapy; initiation, refinement, establishment of methods in physical therapy evaluation, treatment; direct clinical and laboratory approach, philosophical treatise, or research proposal.
Physician Assistant Program

Director: David P. Asprey
Associate director: Anthony Brenneman
Director, clinical education: Carol Gorney
Director, curriculum and evaluation: Theresa Hegmann
Medical director: Daniel Fick
Professor: David P. Asprey
Associate professors (clinical): Anthony Brenneman, Theresa Hegmann
Assistant professor (clinical): Carol Gorney
Graduate degree: M.P.A.S.
Web site: http://paprogram.medicine.uiowa.edu/

The physician assistant profession is one of the newest and most exciting in health care. Physician assistants (PAs) are licensed to practice medicine with physician supervision. They are responsible for making medical decisions and providing a broad range of diagnostic and therapeutic services.

Physician assistants work in a variety of settings, including medical offices, hospital emergency rooms, nursing homes, rural satellite clinics, health maintenance organizations, and patients’ homes.

In the traditional office setting, PAs see patients, obtain histories, perform physical examinations, and order necessary laboratory and/or radiological studies. Based on this information, the PA establishes a diagnosis, develops an appropriate management plan, and initiates treatment that may include prescribing medications. The physician is consulted as needed and remains ultimately responsible for the care provided by the physician/PA team. PAs also are involved in both patient and community health education.

The Physician Assistant Program is part of the Carver College of Medicine on the University of Iowa health sciences campus, which includes University of Iowa Hospitals and Clinics, one of the nation's largest university-owned teaching hospitals. For information about the college's academic programs and resources, see Carver College of Medicine in the Catalog.

Graduate Program

The Physician Assistant Program offers the Master of Physician Assistant Studies (M.P.A.S.). The program emphasizes primary care medicine, particularly family medicine. It also offers elective clinical rotations in selected medical subspecialties.

Students who complete the program are eligible to take the National Certifying Examination for Primary Care Physician Assistants, which they must complete successfully in order to register as physician assistants in the United States.

The Physician Assistant Program is accredited by the Accreditation Review Commission on Education for the Physician Assistant, Inc., and is a member of the Physician Assistant Education Association.

Master of Physician Assistant Studies

The Master of Physician Assistant Studies requires a minimum of 104 s.h. The curriculum spans 25 months and is divided into two phases: didactic and clinical. Both phases emphasize primary health care delivery and the physician assistant's role as a member of the health care team. The program is integrated with teaching at the Carver College of Medicine, permitting interdisciplinary activities between Doctor of Medicine and health care professions students.

Physician assistant students complete approximately 65 percent of the curriculum's didactic phase with second-year M.D. students.

The first phase is conducted on the University's health sciences campus. It begins in late May with seven months of course work in a number of basic science areas, including anatomy, biochemistry, infectious disease, pathology, pharmacology, and physiology. Whenever appropriate, related subjects are integrated to provide sequential lecture and laboratory experience. This session also includes courses in clinical decision making and an introductory course on taking a medical history and performing a physical examination.

The program's patient assessment curriculum couples a sequence of didactic instruction with practical experiences involving simulated and real patients. The level and intensity of patient interactions increase throughout the curriculum as the student gains confidence and clinical competence.

The spring semester of the first phase consists of 050:175 Foundations of Clinical Practice IV for Physician Assistants for Physician Assistants, an 18-week course. Three interrelated courses focus on the application of basic science knowledge to understanding clinical-pathologic correlations of common and/or catastrophic disorders encountered in clinical medicine's major disciplines. The courses continue with instruction in obtaining a problem-oriented medical history and performing a physical examination. The semester also includes continuation of the clinical decision-making course and a short course in clinical pathology.

Before clinical rotations begin, students complete 117:110 Introduction to Clinical Skills, which includes instruction in
several skill areas (e.g., suturing, injections, prescription writing, medical orders, Advanced Cardiac Life Support).

The program's second phase concentrates on clinical education. In 117:201 Clinical Decision Making III, students select a pertinent health question and apply an evidence-based medicine review of the data. They give a PowerPoint presentation of their findings to their colleagues, write a paper for submission to a journal, or prepare a poster presentation for a conference. They also complete 117:107 Seminar for Physician Assistant Students, in which they research and discuss professional issues that will affect their practice as physician assistants.

Students complete a 40-week core of required primary care clinical rotations, including six weeks each of general internal medicine and surgery and four weeks each of family medicine I, family medicine II, pediatrics, adult long-term acute care, emergency medicine, gynecology, and psychiatry. Students also select eight weeks of electives, which may include rotations such as geriatrics, cardiology, dermatology, and orthopaedics.

The primary care clinical rotations are designed to provide instruction and experience in caring for patients in a way that enables students to integrate the knowledge, skills, behaviors, and attitudes they learned in the program's didactic phase. Clinical training is provided at University of Iowa Hospitals and Clinics, the Iowa City Veterans Affairs Medical Center, the Veterans Affairs Central Iowa Health Care System and Broadlawns Medical Center in Des Moines, and other affiliated hospitals throughout Iowa. In elective rotations, students gain additional clinical experience through placement with selected preceptors involved in office-based practices, typically in medically underserved rural areas.

The curriculum is as follows.

**FIRST YEAR (PHASE I)**

*Summer and Fall*

050:174 Foundations of Clinical Practice for Physician Assistants 5 s.h.
060:111 Gross Human Anatomy Physician Assistant Students 6 s.h.
061:104 Principles Infectious Diseases--Physician Assistant 5 s.h.
069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
071:125 Pharmacology for Health Sciences: Physician Assistant Students 6 s.h.
072:164 Human Physiology for Physician Assistant Students 4 s.h.
099:164 Biochemistry for Physician Assistant Students 3 s.h.
117:101 Introduction to Medical History and Physical Examination for Physician Assistant Students 3 s.h.
117:103 Clinical Decision Making I 1 s.h.

*Spring*

050:175 Foundations of Clinical Practice IV for Physician Assistants 13 s.h.
050:183 Healthcare Ethics, Law, and Policy 2 s.h.
069:130 Clinical Laboratory Medicine for Physician Assistants 1 s.h.
117:104 Clinical Decision Making II 1 s.h.

**SECOND YEAR (PHASE II)**

117:107 Seminar for Physician Assistant Students 1 s.h.
117:110 Introduction to Clinical Skills 1 s.h.
117:201 Clinical Decision Making III 1 s.h.

The following are required clinical rotations.

117:300 Emergency Medicine for Physician Assistant Students 4 s.h.
117:301 Gynecology for Physician Assistant Students 4 s.h.
117:302 Family Practice I for Physician Assistant Students 4 s.h.
117:303 Family Practice II for Physician Assistant Students 4 s.h.
117:304 General Surgery for Physician Assistant Students 6 s.h.
117:305 Internal Medicine for Physician Assistant Students 6 s.h.
117:306 Pediatrics for Physician Assistant Students 4 s.h.
117:307 Psychiatry for Physician Assistant Students 4 s.h.
117:308 Adult Long-Term Acute Care for Physician Assistant Students 4 s.h.
Elective clinical rotations are selected from the following.

117:321 Dermatology Elective for Physician Assistant Students
117:322 Neurology Elective for Physician Assistant Students
117:323 Obstetrics for Physician Assistant Students
117:324 Ophthalmology Elective for Physician Assistant Students
117:325 Otolaryngology Elective for Physician Assistant Students
117:326 Pediatric Elective for Physician Assistant Students
117:327 Radiology Elective for Physician Assistant Students
117:328 Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students
117:329 Pediatric (Cardiology) Elective for Physician Assistant Students
117:330 Psychiatry Elective for Physician Assistant Students
117:331 Surgery Elective for Physician Assistant Students
117:332 Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students
117:333 Surgery Elective (Burn Unit) for Physician Assistant Students
117:334 Surgery Elective (Cardiac Surgery) for Physician Assistant Students
117:335 Orthopedics Elective for Physician Assistant Students
117:336 Internal Medicine Elective for Physician Assistant Students
117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students
117:338 Internal Medicine (EKG) Elective for Physician Assistant Students
117:339 Internal Medicine (Gastroenterology) Elective for Physician Assistant Students
117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students
117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students
117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students
117:343 Internal Medicine (Hospice) Elective for Physician Assistant Students
117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students
117:345 Internal Medicine (Correctional Medicine) Elective for Physician Assistant Students
117:347 Urology Elective for Physician Assistant Students
117:348 Family Practice Elective for Physician Assistant Students
117:349 Gynecology Elective (Women's Health) for Physician Assistant Students
117:350 Migrant Health Elective for Physician Assistant Students
117:351 Occupational Medicine Elective for Physician Assistant Students
117:352 Pediatrics (Neonatology) Elective for Physician Assistant Students
117:353 Internal Medicine (Rheumatology) for Physician Assistant Students
117:354 Medical Intensive Care for Physician Assistant Students
117:355 International Medicine for Physician Assistant Students
117:356 Interventional Radiology for Physician Assistant Students
117:357 Gynecologic Oncology Elective for Physician Assistant Students

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Applicants must have taken the Graduate Record Examination (GRE) General Test or the Medical College Admission Test (MCAT) within the 10 years before they apply. They must hold a baccalaureate degree from an accredited institution in the United States and have a cumulative g.p.a. and a science g.p.a. of at least 3.00 on a 4.00 scale or a g.p.a. of at least 3.00 on their last 40 s.h. of college-level science course work. They must have completed preparatory science courses in organic and inorganic chemistry, introductory animal biology or zoology, and general statistics or biostatistics. They also must have completed upper-level courses in human or animal physiology (lower-level combined anatomy/physiology courses do not satisfy this requirement); three upper-level courses in endocrinology, microbiology, histology, and/or related disciplines; and an introductory biochemistry course (combined organic/biochemistry courses do not satisfy this requirement). Courses in cell biology, cell physiology, genetics, immunology, molecular biology, neurobiology, and parasitology are recommended.

Applicants must have at least 1,200 hours of health care experience.

The admissions committee gives special attention to applicants' performance in science courses. Some successful applicants have had a cumulative and science g.p.a. of at least 3.70; up to 141 s.h. of college credit, including at least 81 s.h. in the sciences; and more than 3,000 hours of clinical and/or research experience.
Satisfaction of the basic admission requirements does not ensure acceptance to the program. The admissions committee selects the applicants it considers best qualified. Previous health care experience involving direct patient contact is preferred. The committee requests interviews with the most qualified applicants.

Applications are accepted from April 1 to November 1 for entry the following May. Each applicant must complete the Physician Assistant Education Association centralized application, which includes three letters of recommendation, GRE scores, and transcripts. The majority of prerequisite course requirements must be completed by the November 1 application deadline.

**Expenses**

In addition to University of Iowa tuition and fees, Physician Assistant Program students must purchase their medical uniforms and diagnostic equipment, an expense of approximately $1,700. Microscopes are not required.

**Physician Assistant Program Courses**

117:001 Physician Assistant Clinical Second Year

117:101 Introduction to Medical History and Physical Examination for Physician Assistant Students 0-3 s.h.
Development of skills vital to taking a comprehensive medical history, psychomotor skills, and physical examination techniques necessary for conducting a comprehensive physical exam.

117:103 Clinical Decision Making I 1 s.h.
Review of basic concepts of research design and statistics as they apply to medical research literature; formation of a basis for sound, evidence-based, clinical decision making. Repeatable.

117:104 Clinical Decision Making II 1 s.h.
Core concepts of evidence-based medicine; development of the knowledge and practical skills to search the medical literature for answers to clinical questions and critically appraise the evidence found. Repeatable.

117:107 Seminar for Physician Assistant Students 1 s.h.
Professional issues that affect the physician assistant's practice of medicine.

117:110 Introduction to Clinical Skills 1 s.h.
Suturing, injections, prescription and order writing, medical records, patient confidentiality, Iowa Law governing physician assistant practice, completion of the American Heart Association's Advanced Cardiac Life Support Program. Prerequisite: completion of physician assistant curriculum phase I.

117:201 Clinical Decision Making III 1 s.h.
Asking appropriate clinical questions in the course of patient care; gathering information from multiple sources to answer questions.

117:300 Emergency Medicine for Physician Assistant Students arr.
Obtaining and recording pertinent historical data, obtaining indicated laboratory studies, assessing the results, arriving at a diagnosis, formulating a treatment plan, implementing appropriate therapy.

117:301 Gynecology for Physician Assistant Students 4 s.h.
Opportunity to develop proficiency in history and physical exams of gynecological patients; outpatient, family planning, gynecological cancer, concepts of diagnostic techniques and therapy.

117:302 Family Practice I for Physician Assistant Students 4 s.h.
Obtaining and recording complete history and physical exams; formulation of differential diagnosis and problem list; ordering, obtaining, and interpreting lab and diagnostic studies; implementation of therapeutic procedures and treatment plans.

117:303 Family Practice II for Physician Assistant Students 4 s.h.
Opportunity to participate in delivery of ambulatory primary care; at a different site from 117:302.

117:304 General Surgery for Physician Assistant Students 6 s.h.
Preparation for work as an assistant to the generalist; outpatient and inpatient surgical services, including surgical procedures and management of postoperative course.

117:305 Internal Medicine for Physician Assistant Students 6 s.h.
Eliciting a medical history, doing a pertinent physical exam, obtaining indicated lab studies, assessment of results, formulation of management plan and implementation of appropriate therapy for common internal medicine problems.

117:306 Pediatrics for Physician Assistant Students
Knowledge and skills required for providing appropriate medical care to infants, children, and adolescents; initiation and promotion of interpersonal relationships.

117:307 Psychiatry for Physician Assistant Students 4 s.h.
Training in history and physical exams of psychiatry patients, including individual and family therapy, vocational testing and guidance, development of interviewing skills.

117:308 Adult Long-Term Acute Care for Physician Assistant Students
Development of clinical knowledge and skill in diagnosing, treating, and performing procedures for patients of long-term care settings; knowledge of relevant conditions.

117:321 Dermatology Elective for Physician Assistant Students
Recognizing dermatologic diseases and disorders, instituting appropriate management of patients with dermatologic problems.

117:322 Neurology Elective for Physician Assistant Students
Performing general and neurological exams, establishing diagnosis, recommending lab studies, instituting appropriate management of common neurological diseases and disorders, recognizing the need for urgent treatment.

117:323 Obstetrics for Physician Assistant Students
Proficiency in physical exam of OB patients; applying concepts of diagnostic techniques and therapy; following patients’ course, including labor, delivery, and postpartum care.

117:324 Ophthalmology Elective for Physician Assistant Students
Proficiency in recognizing ophthalmology problems; how to institute appropriate management of these conditions.

117:325 Otolaryngology Elective for Physician Assistant Students
Proficiency in recognizing otolaryngology problems; how to institute appropriate management of these conditions; opportunity for involvement in varied surgical procedures.

117:326 Pediatric Elective for Physician Assistant Students
Experience working with children and adolescents.

117:327 Radiology Elective for Physician Assistant Students
Proficiency in systematic evaluation of normal and abnormal routine radiologic examinations; listing indications for special exam procedures, including details of prepping the patient.

117:328 Pediatric Elective (Bone Marrow Transplant) for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis, treatment, and management of pre- and post-bone-marrow transplant patients.

117:329 Pediatric (Cardiology) Elective for Physician Assistant Students
Cardiovascular assessment and problem management of pediatric patients; experience with a range of acute, chronic, common, and rare cardiology diseases.

117:330 Psychiatry Elective for Physician Assistant Students
Training in evaluation and treatment of psychiatry patients.

117:331 Surgery Elective for Physician Assistant Students
Experience in a wide range of surgical problems, procedures, and treatments, including diagnosis, care and treatment, and postoperative courses of surgical patients.
117:332 Surgery Elective (Transplant/Organ Retrieval) for Physician Assistant Students
Extensive experience in care of patients with end-stage organ failure; evaluation of potential transplant candidates, participation in surgical procedures on transplant service.

117:333 Surgery Elective (Burn Unit) for Physician Assistant Students
Involvement in care on burn unit and in operating room; skills in burn debridement, grafting techniques, skin storage techniques, dressing changes, tub baths, and physical therapy procedures.

117:334 Surgery Elective (Cardiac Surgery) for Physician Assistant Students
Development of technical skills in operating room; essentials of preoperative evaluation and postoperative management of cardiac surgical patient.

117:335 Orthopedics Elective for Physician Assistant Students
Recognition of varied orthopedic problems and treatments; musculoskeletal diseases and disorders, both emergencies and common conditions, and how to establish appropriate management.

117:336 Internal Medicine Elective for Physician Assistant Students
Training in varied internal medicine problems; recognition, appropriate treatment.

117:337 Internal Medicine (Cardiology) Elective for Physician Assistant Students
Cardiovascular assessment and problem management; experience with wide range of acute, chronic, common, and rare diseases.

117:338 Internal Medicine (EKG) Elective for Physician Assistant Students
Experience reading electrocardiograms, interpreting cardiac arrhythmias, performing and evaluating EKG stress tests.

117:339 Internal Medicine (Gastroenterology) Elective for Physician Assistant Students
Experience with a wide range of gastrointestinal pathology; history and physical exams of gastrointestinal diagnostic procedures, follow-up care of patients through outpatient clinics.

117:340 Internal Medicine (Oncology) Elective for Physician Assistant Students
Experience to develop diagnostic skills in clinical oncology and gain familiarity with methods of staging common cancers; assistance in therapy and outpatient management of cancer patients.

117:341 Internal Medicine (Geriatrics) Elective for Physician Assistant Students
Familiarity with broad spectrum of medical conditions among the elderly; experience in history and physical exams, diagnosis of geriatric patients along with follow-up visits.

117:342 Internal Medicine (Pulmonary) Elective for Physician Assistant Students
Development of basic clinical knowledge and skills for diagnosis, treatment, and management of pulmonary diseases.

117:343 Internal Medicine (Hospice) Elective for Physician Assistant Students
Work on a hospice care team performing evaluation, treatment, and education of patients with terminal illnesses; dealing with the prospect of death.

117:344 Internal Medicine (Infectious Disease) Elective for Physician Assistant Students
Development of basic clinical knowledge and skills for diagnoses, treatment, and management of infectious diseases.

117:345 Internal Medicine (Correctional Medicine) Elective for Physician Assistant Students
Experience with ambulatory medicine in a correctional institution; management of acute and chronic diseases, including HIV, hepatitis B&C, psychiatric conditions; focus on confidentiality, security.

117:347 Urology Elective for Physician Assistant Students
Proficiency in managing patients with urologic conditions; skill in taking a urologic history, performing physical exams, interpreting laboratory studies and data.

117:348 Family Practice Elective for Physician Assistant Students
Proficiency in delivering ambulatory primary care.

117:349 Gynecology Elective (Women’s Health) for Physician Assistant Students
Experience in annual gynecologic exams, PAP screening, gynecology problems, contraception issues, STD screening and counseling, common gynecologic procedures.

117:350 Migrant Health Elective for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis, treatment, and prevention of diseases, injuries, and conditions related to environmental exposure in migrant worker populations.

117:351 Occupational Medicine Elective for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis, treatment, and prevention of work-related diseases, injuries, and conditions related to environmental exposure.

117:352 Pediatrics (Neonatology) Elective for Physician Assistant Students
Basic clinical knowledge and skill for diagnosis, treatment, and management of critically ill infants.

117:353 Internal Medicine (Rheumatology) for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis, treatment, and management of rheumatologic diseases.

117:354 Medical Intensive Care for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis, treatment, and management of critically ill patients.

117:355 International Medicine for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis, treatment, and prevention of diseases, injuries, and conditions relevant to international medicine. Repeatable.

117:356 Interventional Radiology for Physician Assistant Students
Basic clinical knowledge and skills for diagnosis and treatment of conditions requiring interventional therapy. Repeatable.

117:357 Gynecologic Oncology Elective for Physician Assistant Students
Experience developing diagnostic skills in clinical gynecologic oncology, learning methods of staging specific cancers; and assisting in therapy and outpatient management of patients with varied cancers.
The Department of Psychiatry teaches M.D. students, principally during their third year, and trains resident physicians for academic and clinical careers in psychiatry. It offers no degree program.

Residency Programs

The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at University of Iowa Hospitals and Clinics and at the Iowa City Veterans Affairs Medical Center. Additional experiences are available at affiliated institutions: Broadlawns Medical Center in Des Moines, the Iowa Medical and Classification Center at Oakdale, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Independence Mental Health Institute (Iowa Department of Human Services).

The department also offers an approved two-year residency in child psychiatry. Fellowships in geriatrics and psychosomatic medicine are available after residency training.

Research

Department of Psychiatry staff members are involved in genetic and family studies of psychiatric disorders, and research in genetic and biological psychiatry, neurochemistry, neuroimaging, neurophysiology, neuropsychiatry, and psychosocial aspects of behavior.

Many research opportunities in psychiatry are available to students and residents, and the basic science areas of neurochemistry, neurophysiology, and electrophysiology offer additional opportunities. The clinical areas of psychology, child psychiatry, and psychotherapy also offer opportunities to a limited number of students for research and further study.

Psychiatry Courses

073:255 Psychiatric Epidemiology 3 s.h.
Population-based studies of psychiatric disorders and associated etiologic tools; diagnostic criteria used in psychiatric research, common structured interviews and rating scales; recent research relevant to common psychiatric disorders; experience writing a research idea using NIH PHS grant form. Offered spring semesters. Prerequisite: 173:140 or consent of instructor. Recommended: 173:240 or two years of resident training in psychiatry. Same as 173:267.

For M.D. Students

073:005 Clinical Psychiatry 4 s.h.
Prerequisite: third-year M.D. enrollment.

073:033 Adult Psychiatry, Pappajohn Pavilion
Prerequisite: M.D. enrollment.

073:035 Child Psychiatry, Pappajohn Pavilion
Roles of child psychiatry as a consultation service. Prerequisite: M.D. enrollment.
073:045 Adult Outpatient Psychiatry and Psychotherapy 4 s.h.
Diagnostic assessment, evaluation, treatment of psychiatric patients; exposure to both psychotherapeutic,
psychopharmacologic treatments. Prerequisite: M.D. enrollment.

073:047 Women’s Wellness and Counseling Service 4 s.h.
Experience evaluating and treating women with mental illness, with some emphasis on practitioner’s autonomy;
four-week rotation. Prerequisite: psychiatry clerkship.

073:105 Research Psychiatry arr.
Experience, training in practical application of scientific methodology; work with research project at Psychiatric Service
or affiliated cooperating research centers. Prerequisite: fourth-year M.D. enrollment.

073:835 Subinternship in Medical Psychiatry 4 s.h.
Hands-on experience in evaluation and treatment of patients with combined medical and psychiatric disease; decisions
regarding appropriate consultations, diagnostic tests, treatment; etiology and pathophysiology. Prerequisite: M.D.
enrollment.

073:998 Psychiatry on Campus arr.
Arranged by student with departmental approval. Prerequisite: M.D. enrollment.

073:999 Psychiatry off Campus arr.
Prerequisite: M.D. enrollment.
Radiation Oncology specializes in the delivery of radiation treatments for cancer patients. It includes treatments with linear accelerators as well as isotopes and temporary and permanent surgically implanted sources. Radiation oncologists also use these methods to treat some benign diseases, such as Graves' ophthalmopathy and trigeminal neuralgia.

The Department of Radiation Oncology is dedicated to educating graduate students, radiation therapy technology students, physics students, medical residents, and medical students. Its faculty members provide instruction for Master of Science and Doctor of Philosophy students in the Free Radical and Radiation Biology Program, through their participation in 077:103 Radiation Biology, 077:211 Medical Physics, 077:222 Free Radicals in Biology and Medicine, and 077:288 Molecular and Cellular Biology of Cancer. The faculty also provides instruction for Carver College of Medicine students.

The department’s professional staff provides training in radiation therapy technology for undergraduate students in the Radiation Sciences Program by teaching courses 672:803 Radiation Therapy I and 672:804 Radiation Therapy II.

The department provides a four-year physician residency training program in radiation oncology that includes clinical care and education. It also has a residency program in medical physics. M.D. students can elect a two- or four-week radiation oncology rotation. Nursing students, dental residents, and fellows in gynecologic oncology and in adult and pediatric hematology and oncology do rotations in the department.

The department also offers specialized research projects and sponsors postdoctoral students in biology, physics, and clinical disciplines by arrangement with the instructor or mentor.

Radiation Oncology Courses

186:202 Radiation Oncology
Integration of clinical oncology, physics, and cancer biology; clinical work with faculty mentors; experience in clinical evaluation, technical physics, biological application.

186:998 Radiation Oncology on Campus
Development of new markers for normal tissue toxicity following radiation treatment.

186:999 Radiation Oncology off Campus
Arranged by the student with department approval.
Radiation Sciences

Interim director: Jennifer Maiers
Director, radiologic technology program: Kathy Martensen
Director, diagnostic medical sonography program: Stephanie Ellingson
Director, nuclear medicine technology program: Anthony Knight
Director, radiation therapy program: Mindi TenNapel
Undergraduate degree: B.S. in Radiation Sciences
Web site: http://www.medicine.uiowa.edu/RadSci/bsrs

Radiation sciences professionals work with physicians to gather accurate patient information for diagnosis, treatment, and/or research of disease and injury. They provide direct patient care, producing quality images and delivering treatment using a variety of radiation sources. The radiation sciences professional must apply knowledge, skill, and mature judgment while operating complex equipment safely and efficiently.

Undergraduate Program

The Carver College of Medicine offers a Bachelor of Science in radiation sciences. Undergraduate study in the college is guided by the academic rules and procedures outlined in the Carver College of Medicine section of the Catalog, under "Undergraduate Programs."

Bachelor of Science

The Bachelor of Science with a major in radiation sciences requires a minimum of 124 s.h. The program has a dual focus on radiologic technology and a professional specialty (modality).

Radiation sciences students complete specific requirements of the College of Liberal Arts and Sciences General Education Program, a professional radiography program, a professional specialty (modality program), and advanced course work. The modality program must be completed at The University of Iowa. All students must meet admission, credit, residency, and g.p.a. requirements as detailed in this Catalog section and in the Carver College of Medicine section under "Undergraduate Programs."

Students who complete the entire program at The University of Iowa enroll first in the College of Liberal Arts and Sciences, declaring a radiation sciences interest. While they are liberal arts students, they complete the required General Education courses. During the fall semester of the first year, students apply to the University of Iowa Hospitals and Clinics Radiologic Technology Program. Admission is selective. Accepted students enroll for the second and third years as nondegree students in the Carver College of Medicine. After completing the Radiologic Technology Program, they apply to the Carver College of Medicine as Bachelor of Science students with a major in radiation sciences. Once admitted, they complete the modality and advanced course requirements.

Transfer students, radiographers who hold national certification from the American Registry of Radiologic Technologists, and student radiographers intending to take the national certification exam must be admitted to the Carver College of Medicine as Bachelor of Science students with a major in radiation sciences. They must meet all admission requirements, complete the required University of Iowa courses, and complete a professional specialty (modality program).

Requirements for the major are as follows.

General Education Courses

Rhetoric

010:001-010:002 Rhetoric I-II 8 s.h.
010:003 Accelerated Rhetoric 4 s.h.

Natural Sciences

004:007-004:008 General Chemistry I-II 6 s.h.
004:011-004:012 Principles of Chemistry I-II 8 s.h.

Social Sciences

031:001 Elementary Psychology 3 s.h.
Quantitative or Formal Reasoning

22M:009 Elementary Functions 4 s.h.
or
22M:015 Mathematics for the Biological Sciences 4 s.h.

Distributed Education

Students must complete two courses selected from the following distributed education areas: cultural diversity, historical perspectives, humanities, and social sciences. They must choose one course from each of two different areas; they may not choose two courses from the same area. Students may not select 031:001 Elementary Psychology from the social sciences area. For a list of approved courses in each of these areas, see General Education Program in the Catalog.

RADIOLOGIC TECHNOLOGY PROGRAM

Students must complete a radiologic technology program and pass the American Registry of Radiologic Technologists national certification exam. The Radiologic Technology Program sponsored by University of Iowa Hospitals and Clinics (670:901 Radiologic Technology I and 670:902 Radiologic Technology II) provides education in pathology, radiation biology, radiation protection, patient care, and ethics. Students learn about anatomy and physiology, medical terminology, and radiographic procedures, imaging, and evaluation. They become acquainted with imaging equipment, study quality assurance, and participate in supervised clinical education. The 24-month program begins in July. Graduates of the program are eligible to take the national certification exam; upon successful completion of the exam, students are granted 60 s.h. of credit toward the B.S. in radiation sciences.

SPECIALTY (MODALITY PROGRAM)

Radiation sciences students must complete one of the following specialties (modality programs) at University of Iowa Hospitals and Clinics. Students must apply to and be accepted by the program; online programs do not require application or have a selection process, except for the elective clinical internships. Program duration varies, as does the number of students accepted. Each program offers modality-specific didactic and supervised clinical education courses. Graduates of the modality programs are eligible to take certification exams.

For detailed descriptions of each of the courses mentioned below, see Hospital Certificate Programs in the Carver College of Medicine section of the Catalog.

**Nuclear medicine technology** (074:101 Principles of Nuclear Medicine I, 074:102 Introductory Clinical Nuclear Medicine, 074:103 Principles of Nuclear Medicine II, 074:104 Intermediate Clinical Nuclear Medicine, and 074:105 Advanced Clinical Nuclear Medicine) includes classes in radiopharmacy, radiobiology, radioimmunology, radiation protection, patient care, medical terminology, instrumentation, computer applications, administration, and ethics; 12-month program (30 s.h.); begins in August.

**Radiation therapy** (672:803 Radiation Therapy I, 672:804 Radiation Therapy II, and 672:805 Radiation Therapy III) teaches theory and techniques of radiation therapy technology, with emphasis on competence in areas of oncology treatment planning, treatment delivery, dosimetry, and use of megavoltage radiation-producing equipment to administer treatment; 12-month program (30 s.h.); begins in August.

**Diagnostic medical sonography** (673:803 Diagnostic Medical Sonography I, 673:804 Diagnostic Medical Sonography II, 673:805 Diagnostic Medical Sonography III, 673:806 Diagnostic Medical Sonography IV, and 673:807 Diagnostic Medical Sonography V) focuses on principles and methods in using ultrasound and offers specialties in abdominal, pediatric, obstetric, and gynecologic imaging as well as interventional procedures and vascular technology; 18-month program (36 s.h.); begins in August.

**Magnetic resonance imaging--online** (674:810 Fundamentals for the MRI Technologist, 674:820 MRI Procedures I, 674:830 MRI Procedures II, 674:840 MRI Acquisition and Principles I, 674:850 MRI Acquisition and Principles II, 676:100 Sectional Anatomy for Imaging Sciences, and 676:110 Pathology for Imaging Sciences) offers intensive study and practice in magnetic resonance imaging, including patient care procedures, pathophysiology, physics, sectional anatomy, and instrumentation; online courses (24 s.h.), recommended elective clinical internships (674:860 MRI Clinical Internship I and 674:870 MRI Clinical Internship II, 9 s.h.); begins in August and February.

**Cardiovascular intervention** (675:808 Cardiovascular Interventional I and 675:809 Cardiovascular Interventional II) teaches about imaging equipment, pharmacology, sterile techniques, cardiac monitoring, vascular anatomy and physiology, cardiovascular intervention technology imaging procedures, therapeutic intervention techniques, and digital angiography; six-month program (15 s.h.); begins in September and March.
Computed tomography--online (676:100 Sectional Anatomy for Imaging Sciences, 676:110 Pathology for Imaging Sciences, 676:120 Computed Tomography Procedures, and 676:130 Computed Tomography Physical Principles and QC) concentrates on sectional anatomy, single and multislice computed tomography (CT), electron beam CT, physiologic and 3-D imaging, CT simulation, physics and imaging, and procedures and pathology; online courses (15 s.h.), recommended elective clinical internship (676:140 Computed Tomography Clinical Internship, 6 s.h.); begins in August and January.

ADVANCED COURSES

06J:048 Introduction to Management 3 s.h.
22S:102 Introduction to Statistical Methods 3 s.h.
074:150 Medical Imaging and Radiology Informatics 3 s.h.

ELECTIVES

Elective course work, to complete the required 124 s.h., should be planned in consultation with the advisor.

Advising

Students who have declared a radiation science interest and are completing the General Education Program requirements before admission to the Radiologic Technology Program are advised at the University's Academic Advising Center. After admission to the Radiologic Technology Program, they are advised by the program's director. Students admitted to the radiation sciences major are advised by Radiation Sciences Program personnel.

Admission

Students who intend to complete the entire program at Iowa must be admitted to the College of Liberal Arts and Sciences, with a radiation sciences interest. For information on admission requirements, contact the University's Office of Admissions.

Admission to the Radiologic Technology Program is competitive; enrollment is limited to 25. Student applications are accepted October through December. Students accepted to the program are admitted to the Carver College of Medicine as nondegree students and must meet specific program requirements; see the Radiologic Technology Program web site. A g.p.a. of at least 2.50 in General Education courses is recommended.

Admission to the Carver College of Medicine radiation sciences major requires national certification in radiologic technology from the American Registry of Radiologic Technologists and a g.p.a. of at least 2.50 for all previous college course work, except radiologic technology courses. Admission to the major does not guarantee admission to a professional specialty (modality) program.

Admission to specialties (modality programs) is competitive; enrollment is limited. See the Radiation Sciences Program web site or contact the individual modality program directors for more information. Applicants must hold national certification from the American Registry of Radiologic Technologists. The application deadline is February 1.
Radiology

Head: Laurie Fajardo
Associate professors: Hicham Abada, Joong Ahn, Thomas Barloong, D. Lee Bennett, Bruce P. Brown, Thomas Grabowski, Joan Maley, Louis Messerlie, Brian Mullan, Kenjiro Ohashi, Punam Saha, Alan Stolpen, Shiliang Sun, Brad H. Thompson, G. Leonard Watkins, Jinhu Xiong
Assistant professors: Brooke Breen, Jack Kademian, Geetika Khanna, Toshio Moritani, Heather Ohrt, Stanley Parker, Bruno Polliceni, Maheen Rajput, Daniel Thedens
Web site: http://www.radiology.uiowa.edu

Undergraduate Education

The Department of Radiology offers clinical education to students in the Nuclear Medicine Technology and Radiation Sciences Programs.

Radiology Courses

074:006 Clinical Radiology 2 s.h.
Two-week clerkship. Prerequisite: M.D. enrollment.

074:101 Principles of Nuclear Medicine I 0-6 s.h.
Didactic and laboratory work in radiopharmacy, patient care, radiation protection, math and statistics, radiation physics, anatomy and physiology, radiochemistry and tracer techniques, medical terminology, computer applications. Prerequisite: Nuclear Medicine Technology Program enrollment.

074:102 Introductory Clinical Nuclear Medicine 0-6 s.h.
Experience in preparing radiopharmaceuticals, performing routine nuclear imaging and in vitro procedures; work with clinical instructors. Prerequisite: Nuclear Medicine Technology Program enrollment.

074:103 Principles of Nuclear Medicine II 0-3 s.h.
Didactic and laboratory work in nuclear medicine instrumentation, radiobiology, professional ethics, administration and management, computer applications. Prerequisite: Nuclear Medicine Technology Program enrollment.

074:104 Intermediate Clinical Nuclear Medicine 0-9 s.h.
Progressive responsibility in radiopharmacy, nuclear and P.E.T. imaging, cardiac stress testing. Prerequisite: Nuclear Medicine Technology Program enrollment.

074:105 Advanced Clinical Nuclear Medicine 0-6 s.h.
Proficiency in performance, quality assurance of all radiopharmacy and nuclear medicine procedures; opportunities for independent study, research. Prerequisite: Nuclear Medicine Technology Program enrollment.

074:150 Medical Imaging and Radiology Informatics 3 s.h.
Issues in informatics used in medical imaging and radiology; basic concepts, principles, terminology, and technology in medical imaging informatics; PACS operation, design, implementation; digitalization and acquisition of medical images; research and development of technologies in radiological modalities; stateoftheart medical image processing, storage retrieval; image data format and conversion, image data communication, workflow, visualization and display; system; medical imaging informatics and computer/information science technology; web application/services based telemedicine and teleradiology; image data consistency and fault tolerance, system and data security, clinic implementation and experience, data mining and decisionmaking systems, education and training systems, enterprise systems in medical and health sciences.

074:191 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 096:283, 174:226, 200:110.

074:192 Health Informatics II 3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as 021:280, 051:189, 056:287, 096:289, 200:120.
074:201 Advanced Clinical Radiology  
Prerequisite: M.D. enrollment.

074:203 Vascular and Interventional Radiology  
Prerequisite: M.D. enrollment.

074:901 Community Radiology  
Prerequisite: M.D. enrollment.

074:998 Radiology on Campus  
Prerequisite: M.D. enrollment.

074:999 Radiology off Campus  
Prerequisite: M.D. enrollment.
**Surgery**

**Head:** Ronald Weigel


**Professors (clinical):** Barbara Latenser, Andrew Lee (Ophthalmology/Surgery), Timothy A. Thomsen

**Adjunct clinical professors:** Philip R. Caropreso, Douglas B. Dorner, Thom Lobe, Onyebuchi Ukaabiala

**Associate professors:** Daniel A. Katz, Aimen Shaaban, Joel Shilyansky, Sonia Sugg

**Adjunct clinical associate professors:** Robert J. Cak, Joseph Lohmuller

**Visiting associate professor:** George Noble

**Assistant professors:** Geeta Lal, Isaac Samuel, Melhem Sharafuddin

**Assistant professors (clinical):** Donald E. Boyle


**Adjunct assistant professor emeritus:** Donald E. Boyle

**Associate:** Evgeny Arshava

**Web site:** http://www.healthcare.uiowa.edu/surgery/

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**M.D. Student Training**

The Department of Surgery offers courses that provide a unique combination of experience oriented toward patient care, with basic surgical research designed to promote student awareness of surgery's place among the physician's skills. Surgery courses are open only to M.D. students and qualified students in associated health sciences.

Students develop awareness of surgical therapy's place in the treatment of disease. Emphasis is placed on basic emergency techniques, trauma, oncology, burns, gastrointestinal and biliary tract disease, endocrine disease, transplantation, plastic surgery and reconstruction, and peripheral vascular surgery.

The majority of surgery courses involve patient-centered discussions and practical exercises interwoven with operating room experience. Lectures and conferences are scheduled regularly on specific topics.

Independent study courses in selected surgery topics and clinical experiences are available to fourth-year M.D. students by arrangement with the faculty.

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**Faculty**

The faculty's strengths center in pathophysiology and problems of severe burns, organ transplantation, surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric surgery, endocrine disease, plastic surgery, and vascular surgery.

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**Facilities**

Abundant patient contact provides education in a wide variety of surgical diseases. The Department of Surgery provides training in the only burn unit in Iowa approved by the American College of Surgeons and in the Level I Trauma Center at University of Iowa Hospitals and Clinics.

Laboratories provide equipment, space, and technical expertise to support teaching and a wide spectrum of clinical and scientific research. Projects are available in gastrointestinal surgery, surgical microbiology, peripheral vascular surgery, transplantation, wound healing, organ preservation, vascular surgery, pediatric surgery, and surgical oncology.

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**Surgery Courses**

**075:005 Clinical Surgery**

Experience as active member of surgical team; work on inpatient units, in clinics and operating room; assist in elective and emergency patient care.

6 s.h.

**075:216 Subinternship in General Surgery**

Responsibility for management of selected surgical inpatients, on a surgical service. Prerequisite: 075:005.

4 s.h.

**075:217 Advanced General Surgery**

Opportunity to strengthen clinical skills through experiences in the operating rooms, clinics, wards, and intensive care units of University of Iowa Hospitals and Clinics.

4 s.h.
075:223 Subinternship in Burn Therapy
arr.

075:224 Subinternship in Pediatric Surgery
arr.

075:226 Subinternship in Plastic Surgery
arr.

075:229 Research Surgery
Project with faculty member. Prerequisites: 075:005 and consent of instructor.
arr.

075:230 Subinternship in Vascular Surgery
arr.

075:235 General Surgery, Des Moines, IA
Care of general surgery patients in private hospital setting. Prerequisites: 075:005 and consent of instructor.
4 s.h.

075:236 Intensive Care Unit--Trauma, Iowa Methodist
Subinternship on trauma service team; evaluation and management of critically ill patients in the emergency room, operating room, intensive care unit. Prerequisites: 075:005 and fourth-year M.D. enrollment.
4 s.h.

075:237 General Surgery, Davenport, IA
Participation in diagnosis and management of general surgical patients under supervision of attending surgeons from Davenport Surgical Group, Genesis Medical Center. Prerequisites: 075:005 and fourth-year M.D. enrollment.
4 s.h.

075:998 Surgery on Campus
Surgery on campus; individually arranged. Prerequisite: 075:005.
arr.

075:999 Surgery off Campus
Prerequisites: 075:005 and consent of instructor.
arr.
Urology

Head: Richard D. Williams
Professor emeritus: Charles E. Hawtrey
Associate professor: J. Christopher Austin
Clinical associate professor: Victoria J. Sharp
Assistant professors: Thomas S. Griffith, Fadi Joudi, Moshe Wald
Clinical assistant professor: Elizabeth B. Takacs

Urology encompasses the subspecialty areas of urologic nephrology, oncology, and endocrinology; male reproductive physiology; erectile dysfunction; neurourology; pediatric urology; urinary tract stone and infection, including endourology, laparoscopic urology; diagnostic urology, and urinary tract obstruction.

The Department of Urology offers instruction in all of these areas at both the undergraduate and graduate levels and provides continuing education for the delivery of urologic care.

M.D. Student Training

The department cooperates with several University of Iowa basic science departments to educate first-year M.D. students in the relationship between urology and the basic sciences. It collaborates with the Department of Microbiology in teaching and research concerning immunology of genitourinary cancers and renal transplantation.

In the second-year M.D. course, 050:165 Foundations of Clinical Practice IV ICD, the department presents illustrative lectures and demonstrations related to diagnosis and treatment of genitourinary tract diseases.

Third- and fourth-year M.D. students take Department of Urology courses that provide experience in all areas of urology. The required third-year clerkship covers the fundamentals of these areas through experience in outpatient clinics and inpatient units at University of Iowa Hospitals and Clinics and the Iowa City Veterans Affairs Medical Center, as well as in daily interactive teaching seminars. Fourth-year M.D. students can take advanced elective courses of intensive study in any of the urologic subspecialties.

Continuing Education

The department offers continuing education activities throughout the year for urologic and family practitioners. These activities are conducted by the senior staff, whose interests include pediatric urology, reproductive physiology, urologic oncology, urinary tract stone (including endourology/laparoscopy), and prostatic diseases.

Research

The department has earned international recognition for its studies of prostatic diseases. The urological laboratories conduct research and offer instruction in experimental oncology, cellular immunology, and infertility.

Urology Courses

079:104 Clinical Urology
2 s.h.
Work in urology unit, clinic; responsibility for patient care, working with residents.

079:108 Advanced Clerkship in Urology
4 s.h.
Experience as integral member of urological staff, junior resident level.

079:109 Advanced Clerkship Pediatric Urology
4 s.h.
In-depth study of pediatric urology topics. Prerequisite: 079:104.

079:110 Individual Study and Research
arr.
Preclinical or clinical projects; may include research presentation, collaboration on a publication.

079:119 Advanced Clerkship Female and Reconstructive Surgery
4 s.h.
Clinical and surgical experience in voiding dysfunction, incontinence, urodynamics. Prerequisite: 079:104.

079:120 Community General Urology, Des Moines
4 s.h.
Exposure to the entire spectrum of private practice urology, in office and operating room settings; experience with preoperative and postoperative care; nonoperative aspects of office-based community urology. Prerequisite: 079:104.

079:999 Urology off Campus
Individually arranged by students with department approval.
The College of Nursing is an integral part of the University of Iowa health science campus, sharing in and contributing to teaching, research, and patient care resources that have earned international recognition. The University provides an unusually fine setting for nursing preparation because the educational and clinical resources vital to educating nurses are available on or near the campus. Faculty and students participate fully in University life and contribute their time, interests, and abilities to the many general and special activities of a major research university.

The college's Bachelor of Science in Nursing (B.S.N.), Master of Science in Nursing (M.S.N.), and entry-into-practice M.S.N.: Clinical Nurse Leader programs are accredited by the Commission on Collegiate Nursing Education (CCNE), an autonomous accrediting arm of the American Association of Colleges of Nursing (AACN). They also are approved by the Iowa Board of Nursing. The anesthesia nursing program is accredited by the Council on Accreditation of Nurse Anesthesia Educational Programs.

Graduates of the B.S.N. and entry-into-practice M.S.N. programs qualify to take the licensure examination required for practice as registered nurses (RN). Graduates of advanced practice majors in the graduate program are eligible to take certification examinations and apply for Advanced Registered Nurse Practitioner (ARNP) licensure.

Undergraduate Program

The college offers the Bachelor of Science in Nursing (B.S.N.). The program provides preparation for careers in the hospital care of patients and in community agencies such as public health services, schools, homes, and industries. It also provides a base for graduate study in nursing.

In addition to the advantages of combining general education with specialized career preparation, a college or university program offers the advantages of full participation in the social, cultural, and recreational activities of a highly diverse campus community. In nursing, no less than in other pursuits, a college or university background enables people not only to prepare for a career but to achieve a life of thought and action informed by knowledge, introspection, and contemplation.

The nursing major provides a basis for nurses' roles in wellness and health promotion, in acute care, and in long-term care for chronic illness. The professional nurse provides care to individuals, families, groups, and communities along a continuum of health, illness, and disability in any sector of the health care system.

In addition to providing care, the nurse serves as a coordinator of health care by organizing and facilitating the delivery of comprehensive, efficient, and appropriate service to individuals, families, groups, and communities. The nurse demonstrates the ability to conceptualize the total continuing health needs of the patient, including legal and ethical aspects of care. The University of Iowa program's goal is to produce graduates who are competent, committed, creative, and compassionate.

Bachelor of Science in Nursing

The Bachelor of Science in Nursing requires 128 s.h., including 68 s.h. in the nursing major and 60 s.h. in the College of Liberal Arts and Sciences General Education Program and supportive pre-nursing courses. Students can expect to complete the program in three academic years after admission to the College of Nursing.
B.S.N. students may complete their entire program at Iowa, enrolling for their first year in the College of Liberal Arts and Sciences, or they may transfer from an institution that offers comparable courses approved by the University of Iowa and the College of Nursing. Highly qualified applicants may be admitted to the College of Nursing directly from high school. See “Admission to the B.S.N.” later in this section.

Nursing courses are based on concepts of health, deviations from health, and nursing intervention. Course work progresses in complexity from the sophomore through the senior year. The curriculum reflects the current trend in health care delivery toward emphasis on nursing as a service provided both inside and outside hospitals. Students have access to clinical experiences selected from a multitude of agencies in Iowa, and around the country.

Advising

Advisors from the University’s Academic Advising Center advise students who have declared a nursing interest. After admission to the College of Nursing, each student is assigned a College of Nursing faculty advisor and a professional advisor in the college’s Office of Student Services.

RN/B.S.N. for Registered Nurses

The RN/B.S.N. progression program is designed to offer registered nurses the opportunity to build on their nursing knowledge and experience by earning a Bachelor of Science in Nursing. Much of the program is offered online. RN/B.S.N. students take courses that focus on professional aspects of nursing, nursing process and health assessment, community/public health, leadership and management, research, and nursing issues. Each student is assigned to a College of Nursing faculty member for academic advising and curriculum planning.

The College of Nursing participates as a receiving institution in the Iowa Statewide Articulation Plan for Nursing Education: RN to Baccalaureate.

Students may transfer course work completed at other colleges and universities to satisfy prerequisites and degree requirements other than those for the nursing major. Once they satisfy prerequisites, students may complete the RN/B.S.N. in one calendar year in a sequence that begins each summer and includes three clinical and five nonclinical nursing courses.

The RN/B.S.N. program uses online educational technologies. Face-to-face meetings are limited to physical assessment lab practice and testing each summer, available at support centers across Iowa. Students may be required to do a practicum presentation in fall and spring semesters. Presentations are flexibly scheduled and may be done on site, at a support center, or using online presentation software.

Registered nurses who plan to enter the baccalaureate program should contact the College of Nursing Office of Student Services for information and early advising.

Honors

The College of Nursing Honors Program provides seminars and independent study experience for qualified students. In order to pursue honors studies in nursing, students must have completed the first clinical nursing course and must maintain a University of Iowa g.p.a. of at least 3.33 and a nursing major g.p.a. of at least 3.50.

The honors program enables students to explore subject matter based on individual interests, needs, and goals. It provides opportunities for self-initiative, research experience, and intellectual and personal development, and challenges students to grow and excel. Students who fulfill the requirements of the program graduate with honors in nursing.

Certificate or Minor in Aging Studies

Students in the College of Nursing may participate in the Aging Studies Program, which provides undergraduate students with a multidisciplinary approach to gerontology. Students plan their course of study with their academic advisor in close cooperation with the Aging Studies Program coordinator. Nursing students who successfully complete 21 s.h. of approved course work in aging studies are awarded the Certificate in Aging Studies. Nursing students also may complete a minor in aging studies by taking 15 s.h. outside of their major in courses approved by the Aging Studies Program. See Aging Studies (College of Liberal Arts and Sciences) in the Catalog.

Study Abroad

The College of Nursing advocates study abroad as a rich educational experience for students. Nursing students have the opportunity to encounter another culture directly through the college’s cultural nursing experiences abroad. The intent of these regular programs is to introduce students to health care systems in other countries. In addition, students learn about health conditions and circumstances not widely prevalent in the United States (e.g., diphtheria, nutritional deficiencies). For more information, contact the College of Nursing Office of Student Services.
Expenses and Insurance

Students pay University of Iowa student fees throughout the B.S.N. program. They also must purchase uniforms, white shoes, a stethoscope, a watch with a full-sweep second hand, and supplies and materials for required nursing courses. Students arrange and pay for their own health screening requirements, health insurance, and transportation once they are enrolled in clinical nursing courses. They pay a student fee that covers the cost of computer testing, criminal background checks, and laboratory equipment. The student fee also pays for a professional liability insurance group policy for students who do not yet hold an RN license; see "Professional Liability Insurance" below.

Mandatory Health Insurance

All students must show upon admission to the College of Nursing and each August afterward verification that they have obtained and currently hold health insurance sufficient to satisfy the following minimal standards of coverage (or an equivalent alternative care plan):

- $250,000 lifetime benefit;
- coverage for hospitalization, including coverage for room and board, physician visits, surgeon services, X-ray, and lab services;
- inpatient deductible under an individual policy not exceeding $500 per admission and a 20 percent copayment/coinsurance requirement;
- coverage for medically necessary care, including both physician services for treatment of emergencies, illness, accident, injury, X-ray, and lab services.

Professional Liability Insurance

All students in the College of Nursing are required to carry professional liability insurance throughout the duration of their program. Agencies in which students are involved in clinical practicums require that students have insurance coverage. The College of Nursing provides entering students with information about this requirement. Students who hold an RN license must show verification that they have purchased and currently hold professional liability insurance with a minimum coverage of $1 million per single occurrence. Students without an RN license are covered by a group policy supported by student fees.

Undergraduate Student Organizations

All College of Nursing undergraduate students are members of the National Student Nurses' Association and its local chapter, the Iowa Association of Nursing Students. The University of Iowa Association of Nursing Students (UIANS) provides opportunities for professional growth and development in nursing. UIANS representatives are members of the University of Iowa Student Government (UISG), and there is a UIANS representative on the Academic Council of the College of Nursing.

The University of Iowa Minority Student Nurse Association (UIMNSA) provides opportunities for professional growth and development for students from populations underrepresented in nursing. UIMNSA board members are members of the University of Iowa Student Government.

Admission to the B.S.N.

B.S.N. students may complete their entire program at Iowa, enrolling for their first year in the College of Liberal Arts and Sciences. Contact the College of Nursing or the University of Iowa Office of Admissions. Highly qualified applicants may be admitted to the College of Nursing directly from high school; see "B.S.N. Early Admission Program" below.

Students also may transfer from an institution that offers comparable courses approved by the University of Iowa and the College of Nursing. Cooperating state institutions and independent colleges that participate in the transfer plan include Iowa State University; the University of Northern Iowa; Upper Iowa University; and Briar Cliff, Morningside, Loras, Luther, Clarke, Simpson, and Wartburg colleges. Participating community colleges are located in Ankeny, Bettendorf, Boone, Burlington, Calmar, Carroll, Cedar Rapids, Clarinda, Clinton, Council Bluffs, Davenport, Des Moines, Emmetsburg, Estherville, Fort Dodge, Iowa Falls, Keokuk, Marshalltown, Mason City, Muscatine, Ottumwa, Peosta, Sheldon, Sioux City, and Waterloo.

Completion of the transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for transfers are the same as for all other College of Nursing applicants. Prospective transfer students who want more information about this plan should contact the cooperating institution of their choice.
To apply for admission to the B.S.N. program in nursing, each student must qualify for admission to The University of Iowa and must meet these requirements:

- completion of all prerequisites for admission to the College of Nursing, or current enrollment in any remaining prerequisites;
- a grade of C or higher in all prerequisite courses;
- a g.p.a. of at least 2.70 (recommended).

Applicants whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Registered nurses educated outside the United States are required to present verification of having passed the Commission on Graduates of Foreign Nursing Schools (CGFNS) examination and specified Excelsior baccalaureate nursing examinations. They also must meet the University's English proficiency requirements.

A criminal background check is conducted for all prelicensure and undergraduate students upon admission.

**High School Background**

The College of Nursing requires four years of English, three years of social science, three years of mathematics (a minimum of algebra I-II and geometry), two years of one foreign language, one year each of biology and chemistry, one-half year of physics, and other college preparatory courses selected with the help of the high school counselor.

**Preclinical Background**

In addition to the biological and behavioral science courses required for College of Nursing admission, students must satisfy the following requirements before beginning clinical course work.

**Rhetoric:** 8 s.h. (may be satisfied by testing for advanced standing); a student who has earned 6 s.h. in English composition may complete the speech component after admission.

**Mathematics:** three years of high school mathematics, or a score of 26 or higher on the mathematics battery of the ACT, or completion of a college mathematics course comparable to or more advanced than 22M:002 Basic Algebra II.

**Physics:** one-half year of high school physics or equivalent.

**Other course work:** animal biology, inorganic chemistry I, microbiology, human anatomy, psychology, and human development and behavior.

**American College Tests**

All entering first-year and undergraduate transfer students who have earned fewer than 24 s.h. when they apply for admission to The University of Iowa must complete the American College Test (ACT) or the Scholastic Aptitude Test (SAT). For information on the ACT, write to ACT Inc., Box 451, Iowa City, Iowa 52243.

**B.S.N. Early Admission Program**

Highly qualified applicants may be admitted to the college of Nursing directly from high school through the B.S.N. early admission program. Early admission applicants must qualify for admission to The University of Iowa. They must have an ACT composite score of at least 28, an ACT science reasoning score of at least 25, and a g.p.a. of 3.8 or higher. They also must have completed the following minimum high school course requirements.

**English:** four years

**Mathematics:** three years, including algebra I, algebra II, and geometry

**Science:** three years, including one year of biology, one year of chemistry, and at least one semester of physics

**Social studies:** three years

**Foreign language:** two years of the same language

**Core Performance Standards**

Applicants to the College of Nursing are expected to be capable of completing the entire nursing curriculum and of earning a B.S.N. The nursing curriculum requires demonstrated proficiency in a variety of cognitive, problem-solving, manipulative, communicative, and interpersonal skills. Therefore, College of Nursing students must meet the following performance standards.

- Possess and use critical thinking skills sufficient for clinical judgment (e.g., identify cause-effect relationships in clinical situations, develop nursing care plans)
Demonstrate interpersonal abilities sufficient for interaction with individuals, families, and groups from a variety of social, emotional, cultural, and intellectual backgrounds (e.g., establish rapport with patients, clients, colleagues).

- Possess and use communication skills sufficient for interacting with others (e.g., explain treatment procedures, initiate health teaching, observe patient/client responses, document and interpret nursing actions and patient/client responses)
- Administer cardiopulmonary procedures and other clinical procedures necessary for nursing care; calibrate and use equipment, position patients and clients
- Possess the tactile abilities (with or without an assistive device) sufficient for performing physical assessment (e.g., perform palpation functions of physical exam and those related to nursing interventions)

The examples above are not all-inclusive.

Applicants who may not meet these standards are encouraged to contact the College of Nursing associate dean for academic affairs for a personal interview.

Selection

The college's admission committee recommends to the dean the applicants who appear to be best qualified. Fulfillment of minimum admission requirements does not guarantee admission to the College of Nursing. The committee may require personal interviews. A physical examination report and specific health screening requirements must be on file at the University of Iowa Student Health Service 10 days before the class opens for the first clinical nursing course.

Application Deadlines

Fall semester: April 1
Summer session (RN-BSN students only): January 15

Financial Aid

In addition to general assistance available to University students, there are assistance programs specifically for nursing students. Information about financial aid is available from the University's Office of Student Financial Aid.

Graduate Programs

The college offers the Master of Science in Nursing (M.S.N.), including an entry-into-practice M.S.N. program, the Doctor of Nursing Practice, and a Doctor of Philosophy in nursing. The college also offers a joint M.B.A./M.S.N. with the Tippie College of Business and a joint M.S.N./M.P.H. with the College of Public Health. See "Joint M.B.A./M.S.N." and "Joint M.S.N./M.P.H." later in this section.

Graduate students in the College of Nursing must adhere to all Graduate College policies regarding academic standing, probation, and dismissal; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Master of Science in Nursing

The Master of Science in Nursing (M.S.N.) requires a minimum of 33 s.h. of graduate credit, depending on the choice of concentration area. The program is designed to build on general and professional baccalaureate study. Graduation from an approved baccalaureate degree program is one of the admission requirements. Options are available for registered nurse applicants with a nonaccredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country.

The college also offers the entry-into-practice M.S.N.: Clinical Nurse Leader program for individuals who hold a bachelor's or more advanced degree in a field other than nursing and who do not hold an RN license. The program's graduates are prepared for RN licensure and clinical nursing leadership, including faculty positions in Iowa community colleges.

The M.S.N. ordinarily requires four semesters of full-time study. Part-time study is available for some specializations. The M.B.A./M.S.N. requires a minimum of six semesters of full-time study. The entry-into-practice M.S.N.: Clinical Nurse Leader program requires six sessions of full-time study; students begin the program in spring semester and finish at the end of the next year's summer session.

The M.S.N. curriculum consists of a core component and areas of specialization enhanced by supporting course work in the College of Nursing or in related disciplines. Students may take two to three supporting courses related to their nursing specialization in the social, behavioral, or biological sciences or in business administration, law, or health management and policy.

Students must maintain a g.p.a. of at least 2.75 and must successfully complete a thesis, project, or portfolio.
The M.S.N. curriculum consists of the following components.

**NURSING SPECIALIZATION**

Specialization allows students to build a specialized area of knowledge and practice that extends beyond the advanced nursing core. Students may pursue clinical specialization in genetics nursing or occupational health nursing. Nonclinical specializations include nursing administration, nursing education, the M.B.A./M.S.N. joint degree program, and the M.S.N./M.P.H. joint degree program. Some areas of specialization require special acceptance procedures. Students with unique career goals have the option of modifying their plans of study under the direction of their academic advisors.

**SUPPORTING COURSES**

Supporting course work varies with each specialization area. Supporting courses can be selected from varied academic departments at the University and should relate to the student's interest and specialization area.

Some specialization areas require students to take some courses in other departments. For example, students in the management option select supporting courses from business, health management and policy, or allied study areas. Students select supporting course work in collaboration with their faculty advisors.

**THESIS, PROJECT, OR PORTFOLIO**

All M.S.N. students must take a final examination. Students satisfy this requirement by completing a thesis, project, or portfolio. Students, with their advisors, select the option that best serves their individual career objectives.

The master's thesis is a systematic inquiry into a nursing problem. Methodologies may include historical research, case studies, analytical literature review, surveys, or experimental studies that meet the requirements of the University of Iowa Graduate College. Students earn a total of 5 s.h. for the thesis.

The master's project is an in-depth synthesis and analysis of a chosen topic in nursing. The 15-to-20-page paper of publishable quality may not replicate previous course assignments. Students earn 2-3 s.h. for the project.

The master's clinical portfolio is a written description of the clinical experiences that contributed to the development of the advanced practice role and a self-assessment of clinical competencies and areas for future growth. Students in the clinical nurse leader and clinical specialty tracks are eligible to complete the clinical portfolio.

The master's professional portfolio is a written description of practicum experiences and competencies. Students in the nonclinical tracks are eligible to complete the professional portfolio.

Students earn no credit for the portfolio.

**Admission**

Applicants to the M.S.N. must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants must have a g.p.a. of at least 3.00.

In addition, the College of Nursing requires the following:

- a bachelor's degree with a major in nursing from an accredited program (options are available for registered nurse applicants with a non-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country);
- the legal requirements for the practice of nursing in Iowa;
- current written recommendations from three persons familiar with the applicant's competence in the practice of nursing and potential for leadership and scholarship (forms required);
- current résumé, goal statement, and supplemental/information form;
- completion of an upper-division nursing research course in the undergraduate program (not required for entry-into-practice M.S.N.: Clinical Nurse Leader applicants); and
- successful completion of an upper-level statistics course (or equivalent) within five years of registering for 096:211 Research for Evidence-Based Practice I.

Applicants whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applications for admission to the M.S.N. program are reviewed once a year. In order to be reviewed, the applicant's file must be complete, with all materials submitted. The application deadline is October 26 with the following exceptions.
Anesthesia nursing: October 1
Entry-into-practice M.S.N.: Clinical Nurse Leader (admission is for spring): June 1
A criminal background check is conducted for all graduate students upon admission.

All Graduate College policies pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. Transfer credit applicable to the master's degree program is limited and must be approved by the director of the graduate program in nursing and by the student's advisor. Course work taken 10 years or more before the final examination must be updated, according to University policy.

**Joint M.B.A./M.S.N.**

The joint Master of Business Administration/Master of Science in Nursing requires 61 s.h. The program is designed for students with previous clinical and administrative experience. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. For more information, contact the College of Nursing Graduate Programs Office.

**Joint M.S.N./M.P.H.**

The joint Master of Science in Nursing/Master of Public Health requires 60 s.h. The program is designed for students who want to pursue careers that include professional activities in nursing and public health. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. Contact the College of Nursing Graduate Programs Office for more information.

**M.S.N. and Nursing Home Administrator Licensure**

The nursing home administrator program offers students an efficient option for completing requirements for licensure examination while obtaining a M.S.N. Students may complete the requirements for licensure by supplementing study in adult and gerontology health nursing, adult/gerontology nurse practitioner, or nurse manager.

**Doctor of Nursing Practice**

The Doctor of Nursing Practice requires 72-78 s.h. The degree is designed for nurses who wish to prepare for leadership roles. The program is intended to be completed in three years of full-time study. Students may arrange with their advisors to study part time. Individuals who have completed an M.S.N. with a nurse practitioner or advanced practice specialty program have the option to complete the D.N.P. with 29-32 s.h. of course work.

In addition to clinical specialization in advanced practice, the D.N.P. program provides education in evidence-based practice, economics, finance, and policy. It includes a practicum as well as didactic courses exploring clinical leadership, public policy and advocacy, specialty systems, change theory, finance and business, and entrepreneurial tools. Students have a number of advanced practice options, including psychiatric/mental health nursing, anesthesia nursing, pediatric nurse practitioner, adult/gerontology nurse practitioner, neonatal nurse practitioner, and family nurse practitioner.

**GENERAL AND ADVANCED PRACTICE NURSING CORE**

All D.N.P. students complete 12 s.h. of general core courses, including leadership in nursing (3 s.h.), research application (3 s.h.), health policy and economics (3 s.h.), and nursing informatics in nursing and health care (3 s.h.). The advanced practice nursing core consists of 19 s.h. of course work that includes physiology/pathophysiology, health promotion, pharmacology, health assessment, and professional role courses.

D.N.P. students must complete 1,000 clinical hours. Individuals who enter the program having completed an M.S.N. with a nurse practitioner or advanced practice specialty program may transfer the clinical hours from their M.S.N. program to the D.N.P. program. The clinical hours requirement is evaluated for each individual who has completed an M.S.N. with specialty program. Students who completed more than 1,000 clinical hours in an M.S.N. advanced practice program still must complete a number of D.N.P. practicum and capstone project hours determined in consultation with their advisor and the D.N.P. program's director.

Other transfer credit applicable to the D.N.P. is limited and must be approved by the advisor and the D.N.P. program's director. Transcripts for individuals who have completed an M.S.N. with a nurse practitioner or advanced practice specialty program are evaluated individually.

**Admission**

Applicants to the D.N.P. must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants must have a g.p.a. of at least 3.00.
In addition, the College of Nursing requires the following:

- a bachelor's degree with a major in nursing from an accredited program (options are available for registered nurse applicants with a non-accredited B.S.N., a non-nursing B.A. or B.S., or a B.S.N. from a foreign country);
- the legal requirements for a practice of nursing in Iowa;
- current written recommendations from three persons familiar with the applicant's competence in the practice of nursing and potential for leadership and scholarship (forms required);
- current résumé, goal statement, and supplemental/information form;
- completion of an upper-division nursing research course in the undergraduate program; and
- successful completion of an upper-level statistics course (or equivalent) within five years of registering for 096:211 Research for Evidence-Based Practice I.

Applications must include transcripts for all undergraduate and graduate course work. The goal statement and self-assessment should be two or three pages describing the applicant's nurse practitioner clinical specialization interest, the applicant's goals, and how the D.N.P. will influence the applicant's practice.

Applicants whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applications for admission to the D.N.P. program are reviewed once a year. In order to be reviewed, the applicant's file must be complete, with all materials submitted. Application deadline is October 26. Applicant interviews are required; in some cases, telephone interviews can be arranged.

A criminal background check is conducted for all graduate students upon admission.

Course work taken 10 or more years before the student plans to graduate from the D.N.P. program must be updated, according to University policy.

Post M.S.N./N.P. graduates from nurse practitioner programs at other schools must provide verification of completed clinical hours from their school's nurse practitioner director.

**Doctor of Philosophy**

The Doctor of Philosophy in nursing requires a minimum of 72 s.h. of graduate credit. The program prepares scientists to conduct research in nursing, extend their knowledge base relevant to nursing, and contribute to the body of knowledge in the discipline of nursing. Ph.D. study requires expertise in clinical nursing and competence in research that relates to nursing practice and health care delivery.

B.S.N. students who intend to pursue a Ph.D. in nursing may be eligible to enter the doctoral program directly, once they have completed the B.S.N. Contact the College of Nursing Graduate Programs Office for more information.

Students choose from the curriculum's five focal areas: nursing in aging, nursing administration, nursing informatics, child and family nursing, and an individualized focus. Graduates of the program aspire to careers as researchers, college and university faculty members, consultants, and as leaders in the nursing profession, in health policy-making agencies, and in health care delivery systems.

All students must take the following courses.

096:340 Nursing Theory Construction I 3 s.h.
096:342 Qualitative Research 3 s.h.
096:344 Quantitative Research 3 s.h.
A graduate-level course in nursing/health informatics 3 s.h.
A graduate-level course in each of two of these areas: history of nursing, health economics, health policy 6 s.h.
Cognate minor courses 12 s.h.
Cognate research sequence: research methods and statistics 9 s.h.
096:490-096:491 Research Practicum-Research Practicum 0 s.h.

B.S.N. graduates who enter the Ph.D. directly must take the following course in addition to those listed above.

096:208 Leadership for Advanced Nursing Practice 3 s.h.

Two masters-level specialization courses, such as one of the following pairs:

096:219-096:220 Primary Care: Infants, Children, and Adolescents I-II 6 s.h.
In addition, all Ph.D. students must take the seminars and practicums appropriate for their focus area.

AGING FOCUS

096:410 Nursing Research of Biological Phenomena and Interventions for the Elderly 3 s.h.
096:420 Geriatric Mental Health Research 3 s.h.
096:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
096:440 Research Utilization Residency in Care of the Elderly 3 s.h.

NURSING ADMINISTRATION FOCUS

096:450 Research Seminar in Nursing Administration I: Organizational Systems Concepts 3 s.h.
096:451 Research Seminar in Nursing Administration II: Health Care System Concepts 3 s.h.
096:460 Innovations in Nursing Management 3 s.h.
096:480 Residency in Nursing Service Administration 3 s.h.

NURSING INFORMATICS FOCUS

096:310 Advanced Nursing Informatics 3 s.h.
096:462 Research in Nursing Informatics I 3 s.h.
096:465 Residency in Nursing Informatics 3 s.h.
One additional course chosen by advisor

CHILD AND FAMILY NURSING FOCUS

096:405 Family Nursing Research 3 s.h.
096:445 Research Residency in Child and Family Nursing 3 s.h.

Two of these:
096:415 Genetic Nursing Research 3 s.h.
096:425 Research in Sociocultural Perspectives for Family and Women’s Health 3 s.h.
096:435 Research in Cognitive and Behavioral Interventions for Children 3 s.h.

COMPREHENSIVE EXAM, DISSERTATION

All Ph.D. students must complete a written comprehensive examination. They earn 12 s.h. for work on the dissertation by completing 096:497 Dissertation Research Seminar I: Scholarship Development, 096:498 Dissertation Research Seminar II, and 096:499 Dissertation Research, which includes a dissertation prospectus, the dissertation, and an oral defense.

Admission

All applicants to the Ph.D. program must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Applicants must have taken the Graduate Record Examination (GRE) General Test, preferably within the preceding five years. They must have completed an accredited basic nursing program and must hold a current license to practice nursing (special license for international students). Applicants must submit:

- a two-to-three-page statement describing their educational objectives and identifying a focal area for their doctoral study;
- three recommendations from nursing professionals that speak to the applicant's potential as a scholar;
- a current résumé or curriculum vitae; and
- a complete transcript of all college programs and courses.
Applicants who hold a master's degree must have a g.p.a. of at least 3.00. They must have successfully completed at least one graduate-level course in research and inferential statistics (3 s.h.) and at least one graduate-level course in information systems/informatics (3 s.h.).

B.S.N. graduates who apply directly to the Ph.D. program must have a grade-point average of at least 3.00 and must have successfully completed an upper-division course in statistics. They also must submit a strong statement of their research focus and career goals.

Applicants whose first language is not English must score at least 550 (paper-based), 213 (computer-based), or 81 (Internet-based) on the Test of English as a Foreign Language (TOEFL).

Applications for admission to the Ph.D. program are reviewed once a year. In order to be reviewed, the applicant's file must be complete, with all materials submitted. Application deadline is November 15.

A criminal background check is conducted for all graduate students upon admission.

Certificate in Nursing Service Administration

The Certificate in Nursing Service Administration provides ongoing education for nurses who have a bachelor's degree but do not wish to pursue the M.S.N. Students in the 15 s.h. certificate program must hold a B.S.N. and have an RN license.

Certificate in Advanced Practice Nursing

The Certificate in Advanced Practice Nursing allows nurses who hold a master's degree to pursue advanced clinical training in one of four specialty tracks: pediatric nurse practitioner, adult/gerontology nurse practitioner, family nurse practitioner, or psychiatric/mental health nursing. Certificate requirements include advanced clinical core courses and a sequence of specialty courses. Students formulate a plan of study with the advice and counsel of their advisor and/or the director of the master's program. Successful completion of the specialty sequence qualifies a student to sit for professional certification examinations. Completion of the certificate program is noted on the student's transcript.

Certificate in Nursing Informatics

The Certificate in Nursing Informatics requires 20 s.h. The program is open to graduate students. Work for the certificate focuses on methods and technologies of information handling and knowledge building in nursing. It includes courses that cover the development, support, and evaluation of applications, tools, processes, and structures used to manage data for patient care and administrative support.

Certificate in Health Informatics

The Certificate in Health Informatics is open to graduate students. The certificate requires 20 s.h. in courses numbered 100 or above, including two required core courses.

Health Informatics I (096:283) 3 s.h., is an interdisciplinary course intended primarily for graduate students, faculty, and health care clinicians. It explores decision-making processes and technological tools to support health care administration, management, and practice.

Health Informatics II (096:289) 3 s.h., is an interdisciplinary course focused on field projects related to one or more health informatics topics under the direction of established researchers/educators. It includes a seminar.

Students select electives (9-14 s.h.) from outside their major program of study. For example, a student working toward a nursing degree and the Certificate in Health Informatics can use only non-nursing electives for the certificate. Students choose electives with the guidance of their academic and certificate advisors.

Students who earn credit for a thesis, project, or independent study in their major program of study may apply the credit to the Certificate in Health Informatics if the certificate advisor determines that the subject matter is pertinent.

Professional Improvement

Registered nurses who wish to take University of Iowa course work to fulfill professional or personal improvement objectives may request admission in the professional improvement (PI) category. This admission status allows students to take some graduate courses at the University without committing to a degree objective.

Admission as a nursing professional improvement student requires a formal application, including submission of three current written recommendations and all academic transcripts. GRE General Test scores, required by the University, must be submitted before the end of first semester registration. Deadlines are July 15 for fall semester admission, December 1 for spring semester admission, and May 1 for summer session admission.
Since acceptance as a PI student does not influence acceptance to the M.S.N. or Ph.D. programs, PI students interested in master's or doctoral study in nursing must follow the application procedures for those programs (see the appropriate sections above). Only 6 s.h. or two required nursing core courses taken under professional improvement status may be used to fulfill M.S.N. requirements. Professional improvement students may not enroll in Ph.D. courses.

Student Organizations

All College of Nursing undergraduate students are members of the National Student Nurses’ Association and its local chapter, the Iowa Association of Nursing Students. The University of Iowa Association of Nursing Students (UIANS) provides opportunities for professional growth and development in nursing. UIANS representatives are members of the University of Iowa Student Government (UISG), and there is a UIANS representative on the Academic Council of the College of Nursing.

The University of Iowa Minority Student Nurse Association (UIMNSA) provides opportunities for professional growth and development for students from populations underrepresented in nursing. UIMNSA board members are members of the University of Iowa Student Government.

The college's Association of Graduate Nursing Students (AGNS) provides opportunities for professional growth sharing of research, and representation on varied college and University committees.

Continuing Education

The college offers nonacademic, short-term continuing education programs for registered nurses. Continuing Education Units (CEUs) are awarded for each program on the basis of one unit per 10 clock hours of instruction. The College of Nursing is approved by the Iowa Board of Nursing as an approved provider, number 1, and is accredited by the American Nurses Association Board of Accreditation and the National Association of Pediatric Nurse Associates and Practitioners.

Facilities

The Nursing Building is centrally located on the University's main campus, in close proximity to the Carver College of Medicine, the College of Dentistry, the College of Pharmacy, the College of Public Health, University of Iowa Hospitals and Clinics, Bowen Science Building, and the Hardin Library for the Health Sciences.

Completed in 1971, the building consists of five floors with varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is used entirely for classrooms and laboratories.

Courses

Primarily for Undergraduates

096:029 First-Year Seminar 1 s.h.
Introduces first-year undergraduate students to the intellectual life of the University of Iowa; provides an opportunity to work closely with a faculty member or senior administrator; seminars help students make the transition to college-level learning through active participation in their own learning.

096:030 Human Development and Behavior 3 s.h.
Normal developmental transitions experienced by individuals and family systems throughout the lifespan, including physical, cognitive, and social-emotional development. Prerequisite: 031:001. Same as 153:030.

096:031 Adult Development and Aging 1 s.h.

096:050 Perspectives on Health Care Systems 3 s.h.
Health care systems, delivery modes, resources, economics, contemporary problems and policies that influence health care; emphasis on the context of health care delivery. Prerequisite: facility with e-mail and World Wide Web.

096:051 Art and Science of Nursing 3 s.h.
Integrated view of theories from nursing, the arts, the sciences; historic, holistic, and global perspectives on creative and scientific processes and concepts that underlie and guide nursing practice.

096:100 Mental Health Services and Policy I 3 s.h.
Contemporary mental health services and policy; characteristics of mental health services, historical background, evolution, future prospects. Same as 174:140.

**096:108 Basic Aspects of Aging** 3 s.h.
Social, psychological, and biological aspects; demographics of aging, health, economic issues, primary relationships, social services. Prerequisites: (for 042:108) 031:001 or 034:001, and sophomore or higher standing. GE: Social Sciences. Same as 042:108, 153:108, 169:108.

**096:109 Leadership U** 1-3 s.h.
Repeatable.

**096:112 Human Sexuality, Diversity, and Society** 1-3 s.h.
Physiological, psychological aspects; parameters defined by students, instructor. Same as 042:112.

**096:114 Human Pathophysiology: Organ Systems** 3 s.h.
Normal and abnormal functioning of human cells, tissues, and organ systems over the lifespan; focus on cardiovascular, respiratory, renal, gastrointestinal, endocrine, and reproductive systems, and on processes of metabolism and homeostasis of the internal milieu. Prerequisites: approved courses in biology, inorganic chemistry, microbiology, and human anatomy; or consent of instructor.

**096:115 Human Pathophysiology: Cellular/Neurology/Immunology** 3 s.h.
Normal and abnormal functioning of human cells, tissues, and organ systems over the lifespan; focus on processes of communication, control, defense, and movement. Prerequisites: approved courses in biology, inorganic chemistry, microbiology, and human anatomy; or consent of instructor.

**096:116 Introduction to Human Genetics** 3 s.h.
Introduction to organization of the human genome and basic principles of inheritance in humans; cells and development, chromosome structure and function, gene structure and function, genes in pedigrees and populations, implications of genetic variation on health.

**096:118 Pathophysiology** 3 s.h.
Abnormal physiological health transitions; disorders in cells, organs; systems involved in vegetative functioning and biological defense of the human organism. Prerequisites: one course each in anatomy, chemistry, microbiology, physics, physiology, and psychology; or consent of instructor.

**096:119 Neurological and Behavioral Pathology** 1-2 s.h.
Abnormal physiological and psychological health transitions that have well-documented physiological and/or behavioral bases; focus on neurological and behavioral disorders. Pre- or corequisite: 096:118.

**096:124 Pharmacotherapeutics in Nursing** 3 s.h.
Basic principles of pharmacotherapeutics and pharmacologic interventions; focus on mechanism of drug actions in patient treatment. Prerequisites: 096:114 and 096:115, or consent of instructor.

**096:125 Health Disparities and Cultural Competence** 2-4 s.h.
Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence. Same as 046:377, 172:135.

**096:126 Communication for Health Professionals** 2 s.h.
The communication process in health care settings; emphasis on theory-based strategies to improve communication with individuals, families, other health care professionals.

**096:127 Health Assessment Across the Life Span** 4 s.h.
Knowledge and skills health professionals need to perform holistic health assessments of individuals across the life span; emphasis on history taking, physical assessment skills; laboratory practices. Prerequisites: anatomy, human development and behavior, and animal biology courses; and admission to the College of Nursing.

**096:130 Teaching and Learning Online** 3 s.h.
Synthesis and critical evaluation of current knowledge regarding use of online learning as a tool; empirical research, best practices, and available resources to support effective implementation and management of online learning; skill development and practice; web-based course.

096:134 Basic Concepts of Nursing Care
Physiological and behavioral concepts, nursing interventions, and activities across settings and populations; based on nursing interventions classification taxonomy. First in a two-course sequence. Prerequisite: nursing major. Pre- or corequisites: 096:114 or 096:115, and 096:127.

096:135 Complex Concepts of Nursing Care

096:136 Core Clinical Practicum
Acute care of adult clients in the clinical setting; in-depth practicum experience applying basic and complex concepts of nursing care; focus on clinical decision-making skills. Prerequisites: 096:126, 096:127, and 096:134. Corequisite: 096:135.

096:137 Nursing Care of the Patient in Pain
Assessment, pharmacological and nonpharmacological nursing intervention, evaluation of acute, chronic-benign, and chronic-malignant pain. Prerequisite: RN license.

096:138 Nursing Care of the Patient with Cancer
Basic understanding of the physiology of cancer and various treatment modalities, nursing interventions commonly used with cancer patients and their families, and psychosocial issues in cancer. Prerequisites: 096:124 and 096:135, or RN/B.S.N. enrollment.

096:139 Parent-Child Nursing

096:140 Parent-Child Nursing Practicum

096:141 Gerontological Nursing
Nurse's role in promoting, maintaining, and restoring the health of aging adults; nursing science applied to care of older adults in diverse settings. Prerequisite: 096:135. Pre- or corequisite: 096:124.

096:142 Gerontological Nursing Practicum
Nursing process applied to promote, maintain, and restore health of older adults; opportunities to provide nursing care to well elderly and to acutely and/or chronically ill elderly in a variety of settings. Prerequisites: 096:135 and 096:136. Pre- or corequisites: 096:124 and 096:141.

096:143 Research for Nursing Practice
Introduction to the concepts and process of nursing research; focus on critique of published research and application to nursing practice. Prerequisites: 096:050 and an approved statistics course.

096:146 Health Promotion for Older Adults
Problems, strategic efforts toward long-term goal of health promotion; disease prevention; slowing the decline caused by chronic conditions to extend independent, rewarding lives. Same as 153:146, 169:146.

096:147 End-of-Life Care for Adults and Families
End-of-life issues in care of adults, older adults, and their families. Prerequisites: 096:135 and 096:136, or R.N. student standing, or consent of instructor. Same as 046:146, 050:147, 153:147.

096:150 Independent Study
Supervised study designed for individual undergraduate students.
096:151 Honors Independent Study  
Supervised study designed for individual honors students.

096:152 Honors Seminar  
Supervised study designed for individual honors students.

096:153 Community and Public Health Nursing Theory: Generalist  
Nursing's role in the relationship between community conditions and public health; principles of public health with nursing knowledge and skills to address health needs of individuals, families, communities, populations. Prerequisite: 096:135. Corequisite: 096:154.

096:154 Community and Public Health Nursing Practicum  

096:155 Psychiatric/Mental Health Nursing  
General principles and practices of psychiatric/mental health nursing; psychiatric disorders, populations at risk, continuity of care, problems in daily living. Prerequisite: 096:135. Pre- or corequisite: 096:124.

096:156 Psychiatric/Mental Health Nursing Practicum  
Nursing process used to deliver nursing care to individuals and families with mental illness in a variety of clinical settings; focus on promotion, maintenance, restoration of the mental health of individuals and families. Prerequisites: 096:135 and 096:136. Pre- or corequisites: 096:124 and 096:155.

096:157 Nursing Leadership and Care Management  
Analysis of nursing leadership, care management, and models of care in the context of society and the interdisciplinary health care system. Prerequisite: senior standing in nursing or consent of instructor.

096:158 Clinical Nursing Internship  
Independent internship in one of a variety of health care settings to promote role transition, lifelong learning; emphasis on integration and application of knowledge and skills to design, provide, manage, and coordinate care. Prerequisite: senior standing in nursing.

096:159 Contemporary Nursing Practice Issues  
Identification, exploration, analyses of selected issues in nursing and health care; impact of significant historical, social, political, genetic, legal, and ethical factors on development of the nursing discipline. Prerequisite: senior standing in nursing or consent of instructor.

096:163 Information Management and Patient Care Technology in Practice  
Information management, patient care technology; information systems for quality improvement data, regulatory reporting; range of technologies and infrastructure of evidence-based information for clinical care, including patient monitoring systems, medication administration systems, longitudinal electronic records, clinical decision support tools, and other data gathering devices to support patient care; open to continual learning. Prerequisites: admission to the prelicensure B.S.N. program and 096:136; or consent of instructor.

096:168 Nonprofit Organizational Effectiveness I  
Operational and financial aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 024:147, 032:127, 042:157, 06J:147, 06T:144.

096:169 Nonprofit Organizational Effectiveness II  
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 024:148, 032:128, 042:158, 06J:148.

096:171 Nursing and Society  
Introduction to health care systems and the nursing profession; health care systems, resources, financing health care, and health care accessibility in the United States; the creative and scientific processes that underlie and guide the practice of nursing. Prerequisite: admission to the B.S.N. program.
096:172 Providing Culturally Congruent Care for Diverse Populations 3 s.h.
Role of health care professionals in providing care that is culturally congruent with the client's values, beliefs, and traditions; opportunity to build knowledge, attitudes, awareness, and skills necessary in providing culturally congruent care for specific populations; demonstration of essential skills; exploration of personal attitudes, biases; issues and trends that impact delivery of care to specific populations. Offered online. Prerequisite: sophomore standing or consent of instructor.

096:173 Clinical Inquiry 4 s.h.
Prerequisites: 22S:101 or 22S:102 or equivalent, and admission to M.N.H.P. program.

096:175 Issues in International Nursing and Health Care 3 s.h.
Same as 152:175.

096:176 Clinical Reasoning 4 s.h.
Skills to help nontraditional nursing students synthesize, expand, and refine nursing concepts and clinical reasoning competencies; development and application of cognitive and psychomotor skills necessary for performing systematic, holistic, and culturally competent health assessment. Prerequisites: 096:114 or 096:115 or equivalent, 096:177, and admission to M.N.H.P. program.

096:177 Therapeutic Nursing Interventions I 4 s.h.
Physiological and behavioral concepts, nursing diagnoses, interventions, and outcomes across settings and populations; nursing classifications; experience in the laboratory. Prerequisites: 096:114 or 096:115 or equivalent, 096:176, and admission to M.N.H.P. program.

096:178 Therapeutic Nursing Interventions II 4 s.h.

096:179 Selected Topics in Nursing 1-2 s.h.
In-depth study of topics in professional nursing practice and health care; workshop format.

096:180 Intensive Practicum I 3 s.h.

096:181 Clinical Instruction in Nursing Education 3 s.h.
Role and functions of the nurse educator in the clinical setting; development of teaching strategies and learning activities that support effective clinical and laboratory instruction; evidence-based teaching and evaluation practices; how to incorporate the core concepts of critical thinking for clinical decision-making, effective communication, and cultural competence into clinical experiences; learners with diverse learning styles and backgrounds; ethical and legal implications in clinical teaching and evaluation of learning; technology and emerging trends that impact teaching in the clinical setting. Prerequisite: RN-BSN or graduate standing or consent of instructor.

Prerequisite: (for 046:105) P4 standing. Same as 046:105, 078:210.

096:183 Intensive Practicum II 3 s.h.
Experience in varied acute and community-based settings; opportunity to apply principles to the care of diverse populations, consistent with the four specialty theory courses; proficiency with advanced care management interventions and technologies. Prerequisites: 096:180 and admission to M.N.H.P. program. Corequisites: 096:139, 096:141, 096:153, and 096:155.

096:184 Hairitage: African American Women's Hair Culture 2-3 s.h.
Hair and its centrality to the experience of women of African descent; emotional, political, economical, and historical significance; political, legal, and educational implications; connections to ideas of aesthetics, race relations, family dynamics, consumerism, and so forth.

096:185 Internship in Care Management 14 s.h.
096:186 Cultural Expeditions in Nursing
Multicultural awareness, recognition of specific health care beliefs and values; online course. Prerequisite: 096:135 or consent of instructor.

096:187 Legal Issues for Health Care Providers
Legal issues faced by health care providers, counselors, and social services providers; administrative and regulatory requirements, civil lawsuits, issues that affect students as providers, advocates, and individuals.

096:188 Clinical Leadership I
Nursing leadership, care management, and models of care in contexts of society and interdisciplinary health care; resource allocation and utilization, and delivery of care; clinical outcome improvement for populations and individuals. Prerequisites: 096:176 and 096:177.

096:189 Clinical Leadership II
Prerequisite: 096:188.

096:190 Dimensions of Professional Nursing
The nursing discipline; identification, exploration, analysis of contemporary issues and trends in nursing; professional roles and responsibilities; the health care environment; importance of nursing science, theory, and research to nursing practice. Prerequisites: computer literacy and RN/B.S.N. standing, or consent of instructor.

096:191 Health Assessment
Health assessment of adults; experience demonstrating assessment skills, compiling a health history, conducting a physical exam, and developing nursing diagnoses for clients. Prerequisite: RN/B.S.N. standing or consent of instructor.

096:192 Community Health Nursing
Nursing's role in the relationship between community conditions and public health; principles of public health, nursing knowledge, skills used to address primary, secondary, tertiary disease prevention needs. Prerequisites: 096:190, 096:191, and nursing major or consent of instructor.

096:193 Community Health Nursing Practicum
Experience applying principles of public health and nursing skills and knowledge to primary, secondary, and tertiary disease prevention problems of individuals, families, and groups. Prerequisites: 096:190 and 096:191, or consent of instructor; and RN licensure in state of practicum. Pre- or corequisite: 096:192.

096:194 Leadership and Care Management in Professional Nursing Practice
Nursing leadership and management in a dynamic practice environment; focus on context in which nurses practice, leadership and management principles in changing health care system. Prerequisites: 096:192, 096:193, and 096:197; or 096:143 or consent of instructor.

096:195 Practicum for Leadership and Care Management in Professional Nursing
Experience applying concepts of leadership, management, and evidence-based practice in a variety of settings; development of individualized plan of study for the experience. Prerequisites: 096:192, 096:193, and 096:197; or 096:143 or consent of instructor; and RN licensure in state of practicum. Pre- or corequisite: 096:194.

096:196 Special Studies in Nursing
Identification, exploration, and analysis of contemporary issues that confront the professional nurse; the practice of nursing, regulation of health care systems, available resources. Prerequisite: 096:192 or consent of instructor.

096:198 Rural Clinical Leadership Practicum
Nursing leadership preparation; observation of health professional role models, hands-on interdisciplinary experience in a rural Iowa hospital system; complex leadership roles, unique health care needs and opportunities in rural nursing and health care; contact with a faculty mentor by telephone and e-mail; clinical course. Prerequisites: 096:050, 096:051, and 096:136.

096:199 Intensive Practicum III
4 s.h.
Intensive clinical experience in nursing care management in collaboration with nurse preceptors; complex, collaborative nursing care management of diverse populations; enhancement of care management skills as a basic foundation for achieving optimal clinical outcomes; experience in application of evidence-based practice, clinical decision making, delegation and supervision, fiscal accounting; focus on interdisciplinary collaboration within complex organizational systems. Prerequisites: 096:139, 096:141, 096:153, 096:155, and 096:183.

Primarily for Graduate Students

Courses are offered only if minimum enrollments are maintained.

096:200 Capstone Residency: Clinical Nurse Leader
4 s.h.
Capstone clinical practicum; immersion in role and practice expectations of the clinical nurse leader; mentoring by experienced clinical nurse leader(s) expert in providing and supervising care at the point of care; achieving optimal clinical outcomes by focusing on clinical leadership skills; application of evidence-based practice, collection and evaluation of client outcomes, assessment of cohort risk, interdisciplinary collaboration, client advocacy, client and staff education, direct provision of care in complex situations, application of cost-efficient care principles. Prerequisite: 096:199 or consent of instructor. Pre- or corequisite: 096:188.

096:205 Clinical Practicum: Health of Children in Schools
3 s.h.
Delivery of health care in school settings; educational, legal, cultural, ethical issues in school nursing practice; developmental issues and their relationship to risk factors and the school population's health; application of nursing interventions, evaluation of nursing and educational outcomes; clinical practicum with children in a school setting; seminar, 90 clock hours in clinical practicum. Prerequisite: M.S.N. enrollment with school health focus.

096:208 Leadership for Advanced Nursing Practice
3 s.h.
Roles and behaviors for leading others and influencing health care delivery.

096:209 Health Systems/Economics/Policy
3 s.h.
Global, economic, organizational, political, and technological contexts for advanced nursing practice.

096:211 Research for Evidence-Based Practice I
3 s.h.
Opportunity for clinicians to develop proficiency in use of research- and evidence-based practice; essentials of the research process, qualitative and quantitative research, components of evidence-based practice; acquisition of knowledge and skills necessary for research (knowledge) utilization initiatives and application of evidence-based practice principles in clinical settings; identification of appropriate research questions, synthesis of knowledge base for evidence-based practice, revision of clinical practice guidelines, and evaluation of research utilization and evidence-based practice initiatives. Prerequisite: successful completion of two posttests for 096:143.

096:212 Research for Evidence-Based Practice II
3 s.h.
Innovation models applied to nursing practice; implementation and evaluation research applied to planning, initiating, and monitoring best-care practices; factors that impede or facilitate evidence-based practice changes within and across health care systems; strategies for successful implementation of evidence-based practice change in organizations; students participate in evidence-based implementation process. Prerequisite: Doctor of Nursing Practice enrollment or 096:211 or consent of instructor.

096:213 Physiology and Pathophysiology for Advanced Clinical Practice
3 s.h.
Regulation of cellular, organ, and system function; regulation of internal milieu; functional interrelationships among body systems; cellular and body-wide mechanisms of self-defense; illustrative examples of pathological phenomena. Prerequisites: anatomy, physiology, microbiology, and pathophysiology courses, or equivalents, or consent of instructor.

096:214 Advanced Health Assessment for Clinical Practice
3 s.h.
Knowledge and skills necessary for advanced health assessment of individuals and families across the life span. Prerequisite: graduate standing in nursing or consent of instructor.

096:216 Group Facilitation in Human Sexuality
0-3 s.h.
Principles of group dynamics, group process; leadership skills for small, task-oriented discussion groups on human sexuality. Prerequisite: 042:112 or consent of instructor. Same as 042:216.
096:219 Primary Care: Infants, Children, and Adolescents I

096:220 Primary Care: Infants, Children, and Adolescents II
Enhancement of clinical knowledge and skills for infant, child, adolescent care; development and refinement of knowledge and skills in primary health care delivery. Prerequisite: (for 096:220) 096:219 or 096:280. Prerequisites: (for 070:201) 096:219 and 096:280. Same as 070:201.

096:221 Primary Care: Pediatric Nurse Practitioner III Intensive Practicum
In-depth practicum synthesizing clinical management and role enactment; opportunity for discussion and analysis of practice and role issues. Prerequisites: 096:220 and 096:285.

096:222 Health Promotion and Intervention for Primary Care
Theories of health promotion in primary care, levels of prevention, epidemiological principles and methods; specific interventions designed to maintain, promote, optimize health across the lifespan.

096:223 Clinical Applications for Health Assessment and Health Promotion
Advanced health assessment and promotion skills applied to planning, implementing, and evaluating interventions designed to maintain, promote, and optimize health across the lifespan. Prerequisite: graduate standing in nursing or consent of instructor. Pre- or corequisites: 096:214 and 096:222.

096:224 Pharmacotherapeutics for Advanced Clinical Practice
Pharmacologic, pharmacokinetic, and pharmacodynamic principles essential for advanced clinical practice; classes of drugs frequently used in management of common clinical conditions; legal considerations in prescriptive authority. Prerequisite: 096:213 or consent of instructor.

096:225 Biopsychosocial Dimensions of Healthy Aging
Biopsychosocial dimensions of healthy aging in individuals; healthy aging, including behavior and normal age-related physiological changes, psychosocial and cultural implications of aging; expansion of gerontological nursing based on integration of theory, research, standardized nursing languages.

096:228 Advanced Practice Genetic Nursing I

096:229 Advanced Practice Genetic Nursing Practicum I
Integration and application of advanced practice in genetic nursing assessment and counseling skills with individuals and families. Corequisite: 096:228 or consent of instructor.

096:230 Advanced Practice Genetic Nursing II
Genetic conditions that present in adult years; gene detection, ethical and social aspects of genetic health care delivery, professional issues in the delivery of genetic care. Prerequisites: 096:228 and 096:229. Corequisites: 07C:178 and 096:231.

096:231 Advanced Practice Genetic Nursing Practicum II
Application of advanced practice in genetic nursing; emphasis on conditions that present in the adult years and the nurse's role in an interdisciplinary genetic delivery system. Prerequisite: 096:229. Corequisite: 096:230.

096:232 Professional Aspects of Clinical Nursing Practice
Advanced nursing role competencies and related settings in which advanced nursing practice occurs; history and development, core competencies, advanced practice roles, practice management issues. Prerequisite: 096:208.

096:234 Advanced Community Health Assessment
Health of communities, process of assessment; emphasis on conceptual models from public health that focus on select populations, community assessment. Prerequisite: epidemiology course.

096:235 Advanced Community Health Nursing Practicum I
Integration and application of advanced community health assessment knowledge, skills; nurse's role in population-focused practice. Prerequisites: epidemiology course and M.S.N. enrollment. Corequisite: 096:234.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>096:236</td>
<td>Advanced Community Health Intervention and Evaluation</td>
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<td>Development, implementation, evaluation of health promotion and disease prevention strategies for select populations, communities. Prerequisite: 096:234.</td>
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<td>096:237</td>
<td>Advanced Community Health Nursing Practicum II</td>
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<td>Integration and application of knowledge and skills for advanced community health intervention, outcome evaluation. Offered spring semesters of odd years. Prerequisite: M.S.N. enrollment. Pre- or corequisite: 096:236.</td>
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<tr>
<td>096:238</td>
<td>Intensive Practicum in Advanced Community Health</td>
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<td>Synthesis of advanced public health theory, nursing knowledge; in-depth experience synthesizing clinical management, role enactment. Offered summer sessions of odd years. Prerequisites: 096:235 and 096:237.</td>
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<tr>
<td>096:241</td>
<td>The Care of the Frail Elderly</td>
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<td>Clinical management of the elderly; emphasis on economic considerations, principles of gerontological care, common syndromes, ethical issues; clinical application experience in a long-term care setting. Prerequisites: 096:214, 096:222, and 096:224. Same as 153:241.</td>
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<td>096:242</td>
<td>Primary Care: Adult/GNP Clinical Practice I</td>
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<td>Clinical management of the pathological alterations presented in 096:280; development of comprehensive assessment and clinical management skills in the context of community services and resources.</td>
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<td>096:243</td>
<td>Primary Care: Adult/GNP Clinical Practice II</td>
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<td>Continuation of 096:242, which is prerequisite; clinical management of the pathological alterations presented in 096:284; comprehensive assessment and clinical management skills. Corequisite: 096:284.</td>
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<td>096:244</td>
<td>Primary Care: Adult/Gerontological Nurse Practitioner III Intensive Practicum</td>
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<td>Transition from student to advanced adult/gerontological nurse practitioner; in-depth primary care experience synthesizing aspects of clinical management and role enactment. Prerequisite: 096:243.</td>
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<td>096:246</td>
<td>Nursing Education: Process, Roles, and Strategies</td>
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<td>Role of nurse educator through study, application of teaching/learning theories; learning tasks of students in nursing education programs. Pre- or corequisite: 096:208 or consent of instructor.</td>
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<td>096:247</td>
<td>Curriculum Development in Nursing Education</td>
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<td>Societal, educational, professional factors in undergraduate curriculum design; evaluation of components in basic nursing education programs. Prerequisite: 096:246.</td>
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<td>096:250</td>
<td>Psychiatric/Mental Health Nursing Theory I</td>
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<td>Basic psychological principles, theories related to mental health and intersections between physical and mental health; psychological theory viewed through framework of lifespan development, infancy through adulthood.</td>
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<td>096:251</td>
<td>Psychiatric/Mental Health Nursing Theory II</td>
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<td>Advanced psychiatric nursing practice with selected populations; definition and expansion of practice based on the integration of theory, standardized languages, research, self-evaluation. Prerequisite: 096:250 or consent of instructor.</td>
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<td>096:252</td>
<td>Psychiatric/Mental Health Nursing Practice with Individuals</td>
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<td>Therapeutic models that guide clinical practice with individuals; major psychological and biological theories applied to nursing process with individuals in a variety of settings. Prerequisites: 096:224, 096:251, and admission to psychiatric/mental health nursing program.</td>
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<tr>
<td>096:253</td>
<td>Psychiatric/Mental Health Nursing Practice with Families</td>
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<td>Experience using family therapy as a treatment modality; relevance of family intervention models for meeting mental health needs of families. Prerequisites: 096:251 and admission to psychiatric/mental health nursing program.</td>
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<td>096:254</td>
<td>Psychiatric/Mental Health Nursing Practice with Groups</td>
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Experience using group process as a treatment modality; relevance of group intervention models for meeting mental health needs of clients across the life span. Prerequisites: 096:251 and admission to psychiatric/mental health nursing program.

096:255 Psychiatric/Mental Health Care Management  
Direct and indirect care responsibilities, including clinical supervision, evaluation of treatment environments, program development, interdisciplinary collaboration; development of goals for future professional development and contributions to nursing. Prerequisites: 096:251 and 096:252.

096:256 Occupational Health Nursing I  
Framework for occupational health nursing practice and evolving role of the occupational health nurse; focus on health in the workplace. Prerequisite: 175:230 or consent of instructor. Corequisite: 096:257.

096:257 Occupational Health Practicum I  

096:258 Occupational Health Nursing II  

096:259 Occupational Health Practicum II  
Transition from student role to clinical specialist role in occupational health nursing; in-depth experience in student's interest area. Corequisite: 096:258.

096:260 Nursing Systems Administration I  
Leadership concepts and theories, and their application to the nurse administrator's unique roles in community and institutional health care organizations; environmental, technological, and professional influences on structure and functions of health care and nursing service organizations and on the nurse administrator's role; course modules on leading patient care delivery, health care systems, and strategic management; practicum component for nurse administrator students. Prerequisite: 096:208 or consent of instructor.

096:261 Nursing Systems Administration II  
Concepts and theories regarding administration of financial, material, and human resources and quality of service, related to selected functions of the nurse administrator; course modules on financial management, human resources management, and outcomes and safety management; financial, human resources, and outcomes management in context of institutional settings (hospitals, nursing homes) or community and ambulatory care settings; influence of economic and social forces on administration of resources, personnel, and quality of service; research in nursing, business, and behavioral science related to administrative functions; practicum component for nurse administrator students. Prerequisite: 096:208 or 096:260 or consent of instructor.

096:263 Informatics in Nursing and Health Care  
Foundation of information management and processing principles that support data, information, and knowledge in provision and delivery of nursing and health care. Prerequisites: competence in computer use and nursing major, or consent of instructor.

096:266 Advanced Case Management: Interdisciplinary Approach  
Theory, evidence, and strategies for health care coordination and integration examined through analysis of case management and disease management interventions; interdisciplinary approach; leadership for interdisciplinary teamwork; analysis and critique of case and disease management theory and models; synthesis of case and disease management principles as a framework for managing health care outcomes for cost and quality, identification of evidence-based clinical care guidelines; analysis of financial, legal, ethical, and outcomes management components of case and disease management practice. Same as 174:266.

096:269 Human Physiology, Pathology, and Assessment for Advanced Practice Nursing  
Detailed study of normal and abnormal human physiology, including mechanisms that govern and support cell, organ, and system function; builds on basic sciences required for undergraduate nursing curriculum and on clinical skills from experience in intensive care setting. Prerequisite: admission to anesthesia nursing program or consent of instructor.
096:270 Human Anatomy, Physiology, Pathophysiology, and Assessment for Advanced Practice Nursing
Interrelationships between anatomic structure and physiological function in health and disease; clinical assessment of functional integrity of organ systems; implications of pathophysiology for anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 060:270.

096:271 Chemical and Physical Principles of Anesthesia Practice
Chemistry and physics, as applied to anesthesia. Prerequisite: admission to anesthesia nursing program or consent of instructor. Same as 116:271.

096:272 Pharmacology of Anesthesia Practice I
Mechanism and action of drugs; focus on pharmacotherapeutic principles, including pharmacokinetics, pharmacodynamics, receptor binding, cell signaling; principles of uptake, distribution, elimination of anesthetic and adjunctive agents. Prerequisites: grade of 2.67 or higher in 096:271 or 116:271, and admission to anesthesia nursing program; or consent of instructor. Same as 116:272.

096:273 Pharmacology of Anesthesia Practice II
Continuation of 096:272 or 116:272; vascular, hepatic, renal, GI, endocrine aspects; cellular mechanisms, electrolytes alterations. Prerequisites: grade of 2.67 or higher in 096:272 or 116:272, and admission to anesthesia nursing program; or consent of instructor. Same as 116:273.

096:274 Basic Principles of Anesthesia Practice
Overview of anesthesia as a nursing specialty; patient assessment, anesthetic planning and management, pertinent regulations; principles of general and regional anesthesia for surgical specialties. Prerequisite: (for 096:274) grade of 2.67 or higher in 096:272, or corequisite enrollment in 096:273, or consent of instructor. Prerequisite (for 116:274): grade of 2.67 or higher in 116:272 or consent of instructor. Corequisite: (for 116:274) 116:273. Same as 116:274.

096:275 Advanced Principles of Anesthesia Practice I
Special needs and intraoperative management of obstetric, pediatric, and neurological patients; emphasis on pathophysiology, monitoring, ancillary requirements. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273, and 096:274 or 116:274; or consent of instructor. Same as 116:275.

096:276 Advanced Principles of Anesthesia Practice II
Special needs and intraoperative management of patients in cardiac, vascular, thoracic, and other surgical specialties; focus on altered pathophysiology, anesthetic requirements; strategies for special surgical situations. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273, and 096:274 or 116:274; or consent of instructor. Same as 116:276.

096:277 Advanced Principles Anesthesia Practice III
Acute and chronic pain management; anesthetic problems with concurrent multisystem disease, advanced age, altered physical and/or mental status. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273, and 096:274 or 116:274; or consent of instructor. Same as 116:277.

096:278 Professional Aspects of Anesthesia Nursing Practice
Issues in contemporary anesthesia nursing practice: historical development; ethical, legal, and political aspects; evaluation; quality management; responsibilities; career expectations and development; role of professional organization. Prerequisite: anesthesia nursing program enrollment. Same as 116:278.

096:279 Equipment and Technological Principles of Anesthesia Practice
Anesthesia delivery systems, ancillary equipment, monitoring devices; correlation of applicable chemical and physical principles for use, safe operation, care, and cleaning of anesthesia-related equipment. Prerequisites: 116:271 and anesthesia nursing program enrollment. Same as 116:279.

096:280 Primary Care: Adults and Older Individuals I
Pathophysiologic alterations and clinical management of associated health care problems in adults, the elderly. Prerequisites: 096:213, 096:214, 096:222, and 096:224.

096:281 Primary Care: PNP Clinical Applications I
Integration of advanced assessment skills, health promotion, and knowledge of pathophysiological alterations in development and application of advanced practice competencies, including clinical decision making and critical thinking for care of infants, children, adolescents. Prerequisite: 096:223. Corequisite: 096:219.

096:282 Primary Care: Family Nurse Practitioner Clinical Applications I 3 s.h.
Integration of advanced assessment skills, health promotion, knowledge of pathophysiological alterations to develop and apply advanced practice competencies, including clinical decision making, critical thinking. Prerequisite: 096:223. Corequisite: 096:280.

096:283 Health Informatics I 3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 074:191, 174:226, 200:110.

096:284 Primary Care: Adults and Older Individuals II 3 s.h.
Continuation of 096:280. Prerequisite: 096:280.

096:285 Primary Care: PNP Clinical Applications II 3 s.h.

096:286 Primary Care: Family Nurse Practitioner Clinical Applications II 3 s.h.

096:287 Pharmacology of Anesthesia Practice III 2 s.h.
Drugs specific to various specialty areas: tocolytics, vasoactive and cardioactive agents, drugs that alter clotting, chronic pain therapy agents. Prerequisites: grade of 2.67 or higher in 096:273 or 116:273 or consent of instructor, and anesthesia nursing program enrollment. Same as 116:287.

096:288 Primary Care: FNP Intensive Practicum 4 s.h.
In-depth practicum experience synthesizing clinical management and role enactment; seminar on practice and role issues. Prerequisite: 096:286.

096:289 Health Informatics II 3 s.h.
Selected health informatics initiatives, including computer-based patient records, physiologic monitoring, networking, imaging, virtual reality; participation in an interdisciplinary project team focused on an informatics innovation; application and research seminars. Same as 021:280, 051:189, 056:287, 074:192, 200:120.

096:290 Introductory Clinical Anesthesia 1 s.h.
Initial anesthesia preceptorship; development of basic clinical skills for work as a nurse anesthetist. Prerequisites: basic science core courses and anesthesia nursing program enrollment. Same as 116:290.

096:291 Clinical Anesthesia I 1 s.h.
Supervised anesthesia clinical experience for general, orthopedic, gynecologic, pediatric, urologic, dental, EENT, ambulatory surgery, or invasive diagnostic procedures. Prerequisites: 096:290 or 116:290, and anesthesia nursing program enrollment. Same as 116:291.

096:292 Clinical Anesthesia II 1 s.h.

096:293 Advanced Clinical Anesthesia 1 s.h.
Clinical anesthesia experiences in neurologic surgery, cardiovascular/thoracic surgery; experience providing anesthesia for patients with complex pathophysiology in varied surgical settings. Prerequisites: (for 096:293 and 116:293) anesthesia nursing concentration courses and g.p.a. of 2.67 or higher. Prerequisite: (for 096:293) anesthesia nursing program senior standing. Prerequisite: (for 116:293) anesthesia nursing program enrollment. Same as 116:293.

096:294 Obstetrical Anesthesia 1 s.h.
Experience providing anesthesia for the parturient, initial neonatal care; two one-month rotations off campus. Prerequisite: (for 096:294) anesthesia nursing program enrollment. Prerequisites: (for 116:294) anesthesia nursing courses and anesthesia nursing program enrollment. Same as 116:294.
096:295 Rural Anesthesia 1 s.h.
Anesthesia experience in community hospitals; three one-month rotations at UI-affiliated clinical sites in rural Iowa. Prerequisite: (096:295) anesthesia nursing program enrollment. Prerequisites: (for 116:295) anesthesia nursing program enrollment and courses. Same as 116:295.

096:296 Independent Study arr.
Supervised study and/or clinical practice adjusted to needs of master's degree students. Prerequisite: M.S.N. enrollment.

096:297 Primary Care: Neonatal Nurse Practitioner Intensive Practicum 3 s.h.
In-depth practicum synthesizing clinical management and role enactment; opportunity to discuss and analyze practice and role issues; incorporates national guidelines for neonatal nurse practitioner content. Offered summer sessions. Prerequisites: 096:284 and 096:286.

096:298 Master's Project 2-3 s.h.


For Doctoral Students

Open to doctoral students or to others with consent of instructor.

096:300 Classics in the Social Evolution of Modern American Nursing 3 s.h.
From 1870 to present; writings, classic books, documents; influence of societal conditions on expansion of nursing services, education.

096:303 DNP: Advanced Role Development I 3 s.h.
Organizational and leadership skills that enhance practice and emphasize clinical care, ongoing improvement of health outcomes, and patient safety; case management, business practices, multidisciplinary role setting, leadership and ethics, conflict resolution, community or aggregate populations, vulnerable populations. Prerequisite: admission to Doctor of Nursing Practice program. Corequisite: 096:304.

096:304 DNP: Adv Role Development Practicum I 3 s.h.
Opportunities to apply advanced leadership and clinical knowledge in health care systems; application of content from 096:303; identification of needs and/or interests to define student's clinical practice; experience in selected clinical or agency sites to increase competencies in areas such as clinical acumen, case management, leadership, business practices. Prerequisite: admission to Doctor of Nursing Practice program. Corequisite: 096:308.

096:305 Emerging Science 3 s.h.
Acquisition of emerging scientific knowledge in health care and application to individuals, families, populations; integration of epidemiologic approaches, genomic factors, and socio-cultural influences in processes of conducting risk assessment, intervention implementation, and health care delivery evaluation; importance of research and statistical methods in establishing risk profiles; studies of clinical, community, vulnerable, and marginalized populations as essential for developing and implementing individualized health care plans for populations, family units, and individuals. Prerequisite: admission to Doctor of Nursing Practice program. Corequisite: 096:211.

096:306 DNP: Advanced Role Development II 3 s.h.
Builds on 096:304; continued development of in-depth clinical knowledge and skills in student's interest area; advanced levels of interprofessional collaborative skills and team building. Prerequisite: 096:303. Corequisite: 096:307.

096:307 DNP: Advanced Role Development Practicum II 3 s.h.
Builds on 096:304; advanced leadership skills and clinical knowledge applied at practicum site; enhancement of competencies in areas such as clinical acumen, case management, leadership, business practices. Prerequisites: 096:303 and 096:304. Corequisite: 096:306.

096:308 Clinical Leadership Project 1-5 s.h.
Opportunity for in-depth analysis and synthesis of a topic that contributes to an aspect of advanced nursing practice; students relate projects to evidence-based practice/translational science courses and/or 096:303 and 096:306.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>096:309</td>
<td>Data Mining and Machine Learning</td>
<td>3 s.h.</td>
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<td>096:310</td>
<td>Advanced Nursing Informatics</td>
<td>3 s.h.</td>
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<tr>
<td>096:312</td>
<td>Advanced Practice in Clinical Information Systems</td>
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<td>096:313</td>
<td>Computational Intelligence</td>
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<td>096:314</td>
<td>Integrated Seminar in Nursing Informatics</td>
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<td>096:320</td>
<td>Economics of Health Care and Nursing</td>
<td>3 s.h.</td>
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<td>096:330</td>
<td>Nursing and Health Policy, Law, and Advocacy</td>
<td>3 s.h.</td>
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<td>096:340</td>
<td>Nursing Theory Construction I</td>
<td>3 s.h.</td>
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<td>096:342</td>
<td>Qualitative Research</td>
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<tr>
<td>096:344</td>
<td>Quantitative Research</td>
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<td>096:405</td>
<td>Family Nursing Research</td>
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<tr>
<td>096:410</td>
<td>Nursing Research of Biological Phenomena and Interventions for the Elderly</td>
<td>3 s.h.</td>
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<tr>
<td>096:415</td>
<td>Genetic Nursing Research</td>
<td>3 s.h.</td>
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</table>
Concepts in human genetics integrated with nursing research; methodological issues in study of populations with specific genetic problems; generation of testable hypotheses.

096:420 Geriatric Mental Health Research 3 s.h.
Analysis, evaluation; emphasis on program evaluation, geriatric mental health services research, methodological issues. Prerequisite: (for 153:420) Ph.D. enrollment. Same as 153:420.

096:425 Research in Sociocultural Perspectives for Family and Women's Health 3 s.h.
Health experiences of U.S. women and families from oppressed, marginalized cultural and social groups; approaches to developing and testing interventions, outcomes promoting and enhancing health of women and families; mid-range theory related to health care access and utilization.

096:430 Nursing Research in Sociocultural Phenomena and Interventions for the Elderly 3 s.h.
Sociocultural issues for aging clients, corresponding nursing interventions; theoretical orientations to dynamics of aging, transitions and role changes, social/environmental issues. Prerequisite: (for 153:430) Ph.D. enrollment. Same as 153:430.

096:435 Research in Cognitive and Behavioral Interventions for Children 3 s.h.
Research on cognitive and behavioral problems in children, research designs and data analysis, evaluation of instruments, areas that need further development, development of testable research questions.

096:440 Research Utilization Residency in Care of the Elderly 3 s.h.
Project based on relevant gerontological nursing research. Prerequisites: two courses from 096:410, 096:420, or 096:430.

096:445 Research Residency in Child and Family Nursing 3 s.h.
Research or research utilization project based on relevant child and/or family nursing research; guided by preceptor.

096:450 Research Seminar in Nursing Administration I: Organizational Systems Concepts 3 s.h.
Health care organization, nurses in the organization; data collection instruments; directions for further research, implications for model building, research methods, practice.

096:451 Research Seminar in Nursing Administration II: Health Care System Concepts 3 s.h.
Management concepts, health care factors that influence delivery of care systems; patient outcomes; measurement of quality nursing care. Prerequisite: 096:450 or consent of instructor.

096:460 Innovations in Nursing Management 3 s.h.
Current and emerging issues that affect functions, responsibilities of nurse administrator; research base for recent innovations in nursing management; delivery of care systems for high-risk populations.

096:462 Research in Nursing Informatics I 3 s.h.
Fundamental theoretical research regarding study of symbolic representation (text, image, voice), comprehending and communicating nursing phenomena, developing methods to build databases, and developing prototypes of decision support systems and workstations. Prerequisites: 096:310 and Ph.D. enrollment.

096:463 Research in Nursing Informatics II 3 s.h.
Builds on 096:462; clinical applications, related research. Prerequisite: 096:462.

096:464 Nursing and Health Representation and Knowledge Building 3 s.h.
Structure and content of health and nursing representation schemes, knowledge retrieval, and knowledge building; strategies for implementing and evaluating representation schemes in health delivery and knowledge development contexts. Pre- or corequisite: 096:463.

096:465 Residency in Nursing Informatics 3 s.h.
Application of nursing informatics in a practice setting.

096:470 Methods and Issues in Nursing Interventions Effectiveness Research 3 s.h.
Issues in conducting research on nursing management and on clinical interventions cost effectiveness; methods and issues in classification of nursing, health, health systems phenomena. Prerequisite: Ph.D. enrollment or postdoctoral standing or consent of instructor.
096:475 Leadership Institute and Career Development 3 s.h.
Four demands of leadership: purpose, direction, and meaning; trust and accuracy; optimism; action and results. Ten-day course. Prerequisite: Ph.D. enrollment or postdoctoral standing or consent of instructor.

096:480 Residency in Nursing Service Administration 3 s.h.
Application of administrative skills in a practice setting.

096:485 Research Residency for Individualized Option 3 s.h.
Participation in a research project based on an individualized plan of study, under guidance of a preceptor.

096:490 Research Practicum 0 s.h.
Participation in ongoing investigative team as research assistant; followed by 096:491. Prerequisite: consent of advisor.

096:491 Research Practicum 0 s.h.
Continuation of 096:490. Prerequisite: consent of advisor.

096:496 Independent Study arr.
Supervised study adjusted to needs of doctoral degree students. Prerequisite: Ph.D. enrollment.

096:497 Dissertation Research Seminar I: Scholarship Development 1 s.h.
Preparation for successful completion of doctoral course work and dissertation, establishment of career research direction. Corequisite: 096:499.

096:498 Dissertation Research Seminar II 0 s.h.
Research methods, analysis procedures.

096:499 Dissertation Research arr.
The pharmacy profession is concerned with a wide variety of activities, from developing new drug products to caring for patients. An important concept in the delivery of pharmacy services is medication therapy management—the responsible provision of drug therapy to achieve defined outcomes that improve patients' quality of life. These outcomes include preventing, arresting, or curing a disease, and/or eliminating or reducing its symptoms. In order to carry out these activities, pharmacists specialize in the science of drugs and drug information. The dispensing of medications and information at the corner pharmacy is just one aspect of the profession. Pharmacists work in many health care settings, engaging in research, clinical practice, teaching, and counseling. Along with their training in science, drug information helps them learn the business and communication skills necessary for their work.
multifaceted careers.

Demand for qualified pharmacists is high. Iowa's graduates enjoy a 100 percent placement rate. Iowa's pharmacy students study with professors who, in many cases, are pioneering the development of new drugs and are defining the appropriate use of others to solve chronic health problems. They also enjoy advanced research facilities, including those of Iowa's drug research and manufacturing area, where experimental drugs are produced for testing and licensing by manufacturers before being introduced worldwide.

The University of Iowa College of Pharmacy is accredited by the American Council on Pharmaceutical Education.

College Organization

The College of Pharmacy's faculty and programs are organized in divisions defined by three major content areas: clinical and administrative pharmacy, medicinal and natural products chemistry, and pharmaceutics. These divisions provide course work for both the Doctor of Pharmacy curriculum and specialized graduate programs.

Clinical and Administrative Pharmacy Division

Faculty in the Clinical and Administrative Pharmacy Division provide expertise and education in the professional practice of pharmacy. Many are practitioners in a wide variety of settings; they provide instruction in the professional role of the pharmacist and the safe and effective use of medications. Course work in this division is related to pharmacotherapy, communication and practice, ethics and law, the organization and administration of the health care system, and patient care. Faculty serve as role models, providing closely supervised practice experiences.

The division's Master of Science and Doctor of Philosophy programs are based in two areas: clinical pharmaceutical sciences, and pharmaceutical socioeconomics (behavioral, economic, social, and administrative sciences).

Medicinal and Natural Products Chemistry Division

The Medicinal and Natural Products Chemistry Division provides course work in areas related to understanding the chemistry of drugs and their action on human systems. Additional content areas include principles of drug discovery and drug design, natural product chemistry, and biotechnology/genomic strategies for producing new drug molecules.

The division's Master of Science and Doctor of Philosophy programs provide abundant opportunities for interface with researchers in other areas, including medicine, pharmacology, biochemistry, chemistry, and pharmaceutics.

Pharmaceutics Division

The Pharmaceutics Division focuses on physical pharmacy, dosage form development and performance, industrial and manufacturing pharmacy, and the pharmacokinetics and pharmacodynamics of drugs and biological molecules. The division's Master of Science and Doctor of Philosophy programs parallel the research in the division with specialization in formulation and preformulation sciences, biopharmaceutics, pharmacokinetics, pharmacodynamics, novel drug delivery systems, and tissue engineering. Multidisciplinary program opportunities also exist with faculty in chemistry, engineering, dentistry, and other departments.

Professional Program (Pharm.D.)

The College of Pharmacy offers the Doctor of Pharmacy and collaborates with the College of Public Health to offer the joint Doctor of Pharmacy/Master of Public Health (Pharm.D./M.P.H.).

Doctor of Pharmacy

The Doctor of Pharmacy program prepares students for work as pharmacists. It provides professional education in a number of areas, including pharmaceutical technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical socioeconomics, pharmacotherapy, patient care, clinical and hospital pharmacy, and aspects of biotechnology.

The program requires four years of full-time study preceded by at least two years of pre-pharmacy study in the College of Liberal Arts and Sciences at The University of Iowa or at any accredited community or liberal arts college in the United States or Canada. Graduates of the program are qualified to take the national licensure examination required by the Iowa Board of Pharmacy Examiners.

The Pharm.D. requires satisfactory completion of required courses, including at least 12 s.h. of professional electives and 20 s.h. of general education courses; a cumulative g.p.a. of at least 2.00; and a pharmacy g.p.a. of at least 2.00. The pharmacy grade-point average is computed from grades earned in all required courses that students have completed while enrolled in the College of Pharmacy, excluding general education electives and professional electives.
Students must earn a grade of C-minus or higher in transfer courses applied to the Pharm.D.

Rules and regulations concerning academic probation, pass/nonpass, credit by examination, maximum schedule, second-grade-only option, waiver or substitution of courses, cancellation of registration, drop date, and correspondence study are provided in the College of Pharmacy section of the ISIS Student Handbook and in the College of Pharmacy Student Handbook.

The Tippie College of Business, the Carver College of Medicine, the College of Dentistry, and the College of Liberal Arts and Sciences contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, the humanities, and social sciences.

The College of Pharmacy provides students with the highest possible quality in the professional experiential program. Faculty and adjunct faculty serve as preceptors, providing advanced-practice experience at institutions and pharmacies in Iowa, nationwide, and around the world.

**Professional Curriculum**

In addition to the specific courses listed here, students must complete 20 s.h. of general education courses chosen from behavioral, social, humanistic, and business disciplines.

**FIRST YEAR**

Students must complete one semester of 046:001 Introduction to Pharmacy Practice during the first professional year. They also complete 046:004 Student Pharmacist Professionalism throughout the first, second, and third professional years.

**First Semester**

- 046:001 Introduction to Pharmacy Practice 1 s.h.
- 046:050 Pharmacy Practice Lab I 2 s.h.
- 046:103 Fundamentals of Evaluating Clinical Research 1 s.h.
- 046:123 Pharmaceutics I: Solutions 4 s.h.
- 099:162 Biochemistry for Pharmacy Students 4 s.h.

**Second Semester**

- 046:001 Introduction to Pharmacy Practice (if not taken first semester) 1 s.h.
- 046:051 Pharmacy Practice Lab II 2 s.h.
- 046:122 Social Aspects of Pharmacy Care 2 s.h.
- 046:124 Pharmaceutics II: Solids and Semi-solids 4 s.h.
- 046:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy 3 s.h.
- 071:180 Pharmacology for Pharmacy Students I 3 s.h.

**SECOND YEAR**

Students must complete 046:002 Introduction to Community Pharmacy Practice and 046:008 Introduction to Hospital Pharmacy Practice during the second professional year. These experiences will be delivered in set time blocks over the winter break or during the summer before or after the P2 year.

**First Semester**

- 046:002 Introduction to Community Pharmacy Practice 3 s.h.
- 046:116 Pharmacy Practice Lab III 2 s.h.
- 046:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents 3 s.h.
- 046:138 Pharmacokinetics and Biopharmaceutics 3 s.h.
- 046:149 Introduction to Therapeutics/Special Population 2 s.h.
- 046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics 2 s.h.
- 071:181 Pharmacology for Pharmacy Students II 4 s.h.

**Second Semester**

- 046:008 Introduction to Hospital Pharmacy Practice 2 s.h.
THIRD YEAR

Students must complete one semester of 046:003 Introduction to Clinical Pharmacy Practice during the third professional year.

First Semester

046:003 Introduction to Clinical Pharmacy Practice 1 s.h.
046:107 Clinical Practice Skills II: Critical Patient Analysis 2 s.h.
046:115 Drug Literature Evaluation 2 s.h.
046:118 Pharmacy Practice Lab V 2 s.h.
046:129 Pharmaceutical Economics and Insurance 3 s.h.
046:158 FEN, GI, and Renal Therapeutics 2 s.h.
046:159 Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics 2 s.h.
Professional electives 4 s.h.

Second Semester

046:003 Introduction to Clinical Pharmacy Practice (if not taken first semester) 1 s.h.
046:004 Student Pharmacist Professionalism 1 s.h.
046:104 Pharmacy Law and Ethics 2 s.h.
046:108 Clinical Practice Skills III: Applied Patient Management 2 s.h.
046:119 Pharmacy Practice Lab VI 2 s.h.
046:139 Pharmacy Management and Marketing 2 s.h.
046:164 Neurology/Psychiatry Therapeutics 2 s.h.
046:165 Infectious Disease Therapeutics 2 s.h.
Pharmacy socioeconomics selectives (two courses) 4 s.h.
Professional electives 5 s.h.

FOURTH YEAR: ADVANCED PRACTICE EXPERIENCES

During the fourth year, students are required to complete eight advanced-practice rotations. Four of the rotations are required, the other four are elective. Students choose elective rotations from a list of professional experiences; see "Rotations" below.

046:178 Hospital Pharmacy Rotation 4 s.h.
046:179 Community Pharmaceutical Care Rotation 4 s.h.
046:180 Acute Care Medicine Rotation 4 s.h.
046:181 Elective: Family Medicine Rotation 4 s.h.
Four elective rotations (4 s.h. each) 16 s.h.

ROTATIONS

046:136 Elective: Academic Rotation 4 s.h.
046:140 Elective: Ambulatory Care Rotation 4 s.h.
046:142 Elective: Compounding/Complimentary Alternative Medicine Rotation 4 s.h.
046:143 Elective: Critical Care Medicine Rotation 4 s.h.
046:161 Elective Drug Information Rotation 4 s.h.
046:178 Hospital Pharmacy Rotation 4 s.h.
046:179 Community Pharmaceutical Care Rotation 4 s.h.
046:180 Acute Care Medicine Rotation 4 s.h.
046:181 Elective: Family Medicine Rotation 4 s.h.
046:182 Elective: Pediatrics Rotation 4 s.h.
046:183 Community Pharmacy Rotation 4 s.h.
046:184 Elective: Psychiatry Rotation 4 s.h.
046:185 Elective: Neurology Rotation 4 s.h.
046:186 Elective: Surgery Rotation 4 s.h.
046:187 Elective: Nuclear Pharmacy Rotation 4 s.h.
046:188 Elective: Pharmacy Practice Underserved Population Rotation 4 s.h.
046:189 Elective: Pharmacy Rotation 4 s.h.
046:192 Elective: Long Term Care Rotation 4 s.h.
046:193 Elective: Home Health Care Rotation 4 s.h.
046:194 Elective: Managed Care Rotation 4 s.h.
046:196 Ambulatory Care Rotation 4 s.h.
046:197 Elective: Hematology/Oncology Rotation 4 s.h.
046:199 Elective: Research Rotation 4 s.h.
046:300 Elective: Emergency Medicine Rotation 4 s.h.
046:301 Elective: Hospital Management Rotation 4 s.h.
046:302 Elective: Infectious Disease Rotation 4 s.h.
046:303 Elective: Medication Use Evaluation Rotation 4 s.h.
046:304 Elective: Pharmacy Industry Rotation 4 s.h.
046:305 Elective: Pharmacy Regulatory Rotation 4 s.h.
046:307 Elective: Veterinary Pharmacy Rotation 4 s.h.
046:308 Elective Advanced Community Pharmacy Rotation 4 s.h.

PROFESSIONAL ELECTIVES

046:005 Dean's Pharmacy Forum I 1-2 s.h.
046:006 Dean's Pharmacy Forum II 1-2 s.h.
046:011 PDAs and Electronic Drug Information Sources 2 s.h.
046:012 Survey of Basic Pharmaceutical Sciences 1-2 s.h.
046:018 Journey Through Illness 1 s.h.
046:101 Pharmacy Projects 1-3 s.h.
046:105 Alternative and Complementary Medicine arr.
046:121 Substance Abuse 3 s.h.
046:126 International Perspectives: Xicotepec 3 s.h.
046:127 Pharmaceuticals Management for Underserved Populations 3 s.h.
046:135 Perspectives in MNPC Research 1 s.h.
046:144 Elective: Insurance and Reimbursement 2-3 s.h.
046:146 End-of-Life Care for Adults and Families 2-4 s.h.
046:157 Quantitative Research Methods in Pharmacy 4 s.h.
046:169 Introduction to Pharmacogenomics 2 s.h.
046:171 Nonprescription Pharmacotherapy 2 s.h.
046:173 Parenteral Products and Technology 2 s.h.
046:174 Pharmacy Service Development 3 s.h.
046:176 Immunization Theory and Practice 2 s.h.
046:198 Elective: Hospital Pharmacy Practice Management 2 s.h.
046:211 Total Synthesis of Natural Products 3 s.h.
046:215 Current Medicinal Chemistry 3 s.h.
046:219 Analytical Biochemistry 3 s.h.
046:227 Medicinal and Natural Products Chemistry Seminar 1-2 s.h.
046:253 Elective: Economics and Treatment Choice 2 s.h.
046:255 Social Aspects of Pharmacy Care 2 s.h.
046:256 Elective: Marketing and Healthcare 2 s.h.
046:357 Topics in Community Pharmacy Management 2 s.h.
046:377 Health Disparities and Cultural Competence 2-4 s.h.
Joint Pharm.D./M.P.H.

The College of Pharmacy and the College of Public Health offer the joint Doctor of Pharmacy/Master of Public Health. The joint Pharm.D./M.P.H. requires 42 s.h. of graduate credit. In addition to the requirements of the Pharm.D. degree; see "Pharm.D. Requirements" below. Students who complete the program are granted both degrees.

The Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Its graduates may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate admission to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Admission requirements include a bachelor's degree or a minimum of 120 s.h. of undergraduate course work; an undergraduate cumulative g.p.a. of at least 3.00; one semester each of college algebra and biology; transcripts of all college course work; scores (preferably at or above the national median) on the Graduate Record Exam or the Pharmacy College Admission Test (PCAT); and three professional recommendations (University of Iowa recommendation forms are required).

Contact the College of Pharmacy and the College of Public Health for details.

Curriculum

Students in the Pharm.D./M.P.H. program must complete M.P.H. core courses, practicum, and public health electives in addition to courses required for the Pharm.D.

M.P.H. CORE COURSES

Students must earn a B or higher on each core course. Students may repeat core courses to achieve this standard.

All of these:

- 170:101 Introduction to Public Health 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
- 172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 175:197 Environmental Health 3 s.h.

One of these:

- 174:102 Introduction to the U.S. Health Care System 3 s.h.
- 174:200 Introduction to Health Care Organization and Policy 3 s.h.

M.P.H. PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. Students must have completed or be enrolled in all six M.P.H. core courses before registering for the practicum. A poster presentation or a final written report with oral presentation is required. The practicum constitutes the final examination for the M.P.H.

The setting for the 200-hour Pharm.D./M.P.H. practicum must have both public heath and pharmacy components.

- 170:299 M.P.H. Practicum Experience 3 s.h.

M.P.H. ELECTIVES

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, health communication, health policy and administration, occupational and environmental health, public health genetics, or an approved M.P.H. focus area (aging studies; global health; maternal,
child, and family health; or nutrition and exercise). Electives are chosen in consultation with the student's advisors in the College of Pharmacy and Public Health.

COURSES THAT COUNT TOWARD BOTH DEGREES

The following required courses from the Pharm.D. curriculum also count as credit toward the M.P.H.

- **046:129 Pharmaceutical Economics and Insurance** 3 s.h.
- **046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics** 2 s.h.
- **046:156 Cardiovascular Therapeutics** 2 s.h.
- **046:165 Infectious Disease Therapeutics** 2 s.h.

PHARM.D. REQUIREMENTS

The joint Pharm.D./M.P.H. program requires students to complete the professional curriculum of the Pharm.D. program (see "Doctor of Pharmacy (Pharm.D.)" earlier in this section).

Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

Admission to the Pharm.D.

Application deadline for the Pharm.D. program is December 1.

Students admitted to the College of Pharmacy are required to submit a $250 admission acceptance fee. The fee is applied to tuition for the student's first semester of enrollment in the college. The deposit is not refunded to applicants who do not enroll in the College of Pharmacy.

The college-level course work outlined below is the minimum academic requirement for admission to the College of Pharmacy. The Pharmacy College Admission Test (PCAT), a personal statement, personal interviews, and two letters of reference are required for admission. Students must have an overall cumulative g.p.a. of at least 2.50 to be considered for admission.

Fulfillment of these requirements does not ensure admission to the college; the admission committee selects the best-qualified applicants. Questions concerning satisfaction of degree requirements should be directed to the College of Pharmacy Office of Academic Affairs.

Rhetoric: 8 s.h., or 6 s.h. of transfer credit in English composition and rhetoric, and 2-3 s.h. in speech (010:001 Rhetoric I and 010:002 Rhetoric II, or 010:003 Accelerated Rhetoric)

Human anatomy: 3 s.h. (060:110 Principles of Human Anatomy)

General biology: 8 s.h. (002:010 Principles of Biology I and 002:011 Principles of Biology II)

General chemistry: 8 s.h. (004:011 Principles of Chemistry I and 004:012 Principles of Chemistry II)

Organic chemistry: 6 s.h. (004:121 Organic Chemistry I and 004:122 Organic Chemistry II)

Mathematics: 3-4 s.h. of a satisfactory differential and integral calculus course (22M:016 Calculus for the Biological Sciences)

Microbiology: 4 s.h. (061:112 Pharmacy Microbiology)

Microeconomics: 3-4 s.h. (06E:001 Principles of Microeconomics)

Physics: one year of high school physics or one semester of college-level physics with a lab (029:008 Basic Physics)

Human physiology: 3 s.h. (027:130 Human Physiology)

Statistics: 3 s.h.

General education electives: at least 12 s.h.

Each student must complete 20 s.h. of general education courses in order to graduate. Courses in moral reasoning or ethics, communications, computer science, and business are recommended. Courses in the behavioral and social sciences and the humanities are acceptable. Courses in physical education skills, applied music, and studio art are not acceptable.

Students must earn a grade of C-minus or higher in transfer courses applied to the Pharm.D.

Financial Support
All second-, third-, and fourth-year pharmacy students are encouraged to apply for College of Pharmacy scholarships. Applications are available each April from the Pharmacy Office of Academic Affairs. Students complete a single application form in order to be considered for all scholarships. Award amounts vary. The Awards and Recognition Committee selects the best-qualified applicant for each scholarship.

**Seymour M. Blaug Memorial Award:** for a pharmacy student with above-average academic achievement.

**Ilse O. Buckner Scholarship:** for a pharmacy student who maintains satisfactory academic progress; nonrenewable, financial need is considered.

**Burroughs Wellcome Scholarship:** for a pharmacy student in good academic standing, financial need and exhibits leadership.

**David and James Carlson Scholarship:** for pharmacy students interested in clinical or hospital practice; financial need is considered.

**Jordan and Jana Cohen Doctor of Pharmacy Scholarship:** for a pharmacy student in good academic standing and shows financial need.

**Vernon Conzemius Scholarship:** for selected pharmacy students.

**Ben M. Cooper Memorial Award:** for an academically outstanding pharmacy student; preference is given to students from Scott County, Iowa; financial need is considered.

**John & Margo Daniel Scholarship:** preference for a student from Webster County, Iowa.

**Alice Coxon Gates Scholarship:** for an Iowa resident with a commitment to pharmacy.

**CVS Scholarship:** for a student in good academic standing who is interested in community pharmacy.

**Max Eggleston Scholarship:** for a student who has completed one year; preference is given to students from Iowa; based on financial need.

**Lori A. Grimes Memorial Scholarship:** based on financial need.

**Gary Hadley Scholarship:** committee choice

**Dick and Brenda Hartig Scholarship:** preference is given to students from Dubuque, Waukon, Dyersville, Iowa City, Galena, or Stockton, Iowa; based on financial need.

**Thomas D. Hill Scholarship:** for any pharmacy student in good academic standing.

**Janet Hinderliter Scholarship:** P3 or P4 student with a minimum 3.00 grade point average with a demonstrated involvement in campus and community affairs.

**Frances T. and Charles Holub Memorial Award:** for selected third-year pharmacy students; financial need is considered.

**Iowa Pharmacy Foundation Scholarship:** for selected pharmacy students who are residents of Iowa and who demonstrate outstanding academic ability; financial need is considered.

**Johnson County Pharmacists Association Scholarship:** for any student member of JCPS with a grade-point average of at least 3.00.

**Kuever Scholarship Fund:** for a pharmacy student from Iowa who is in good academic standing.

**Ernest Kyle Memorial Scholarship:** for a pharmacy student from Iowa who is in good academic standing.

**Ronald Madden Scholarship:** for an Iowa high school graduate with a B or higher average in high school.

**Charles J. Malecek Pharmacy Scholarship:** for a selected pharmacy student.

**Lloyd E. Matheson and Randal P. McDonough Honorary Scholarship:** for a student with financial need.

**Carleton Mikkelsen Scholarship:** for the top P4 student based on final P3 grade-point average.

**Miller-Ruegnitz Scholarships:** based on financial need.

**NACDS Scholarship:** for a student who is interested in community pharmacy.

**Petersen Linder Scholarship:** for a pharmacy student in excellent academic standing who has outstanding leadership skills; based on financial need.

**Pharmacists Mutual Scholarship:** committee choice

**Quad Cities Area Pharmacists Association Scholarships:** demonstrated financial need; preferably one student
each from Iowa and Illinois.

**Sattler Family Scholarship:** committee choice, alternates with the college of medicine.

**Scherling Prize:** superior academic achievement in medicinal and natural products chemistry.

**Gordon H. Sheffield Scholarship:** P3 or P4.

**ShopKo Scholarship:** preference is given to students from Iowa who are interested in a career with ShopKo and who are from Burlington, Dubuque, Fort Madison, Mason City, Sioux City, or Pamida; financial need is considered.

**Shutt Pharmacy Scholarship:** preference is given to Iowa residents; based on financial need.

**H. Curtis Snyder Award:** for a pharmacy student in good standing.

**Supervalue Scholarship:** good academic standing, must be currently employed in a community pharmacy setting.

**Wilber J. Teeters Scholarship:** for a pharmacy student who has completed at least one year in the college; financial need is considered.

**Teeters/Wahl Scholarship:** for pharmacy students based on outstanding academic ability, U.S. citizenship, and financial need.

**John Stanley Thor Memorial Award:** for a pharmacy student in good standing.

**Colonel Thomas C. Veach Class of 1952 Scholarship Fund:** preference given to a student interested in industrial pharmacy.

**Wal-Mart Scholarship:** for a P3 or P4 student with high scholastic standing who demonstrates strong leadership, desire to enter a community pharmacy practice, and financial need.

**Louis C. Zopf Memorial Award:** for a pharmacy student who is academically qualified; financial need is considered.

**John D. Zuelke Scholarship:** preference given to a P3 or P4 student from Wapello County, Iowa.

**Graduate Programs**

The college offers a Master of Science and a Doctor of Philosophy in four areas: clinical pharmaceutical science, medicinal and natural products chemistry, pharmaceutical socioeconomics, and pharmaceutics.

Advanced study in the pharmaceutical sciences prepares students for research, teaching, and administrative positions in the pharmaceutical industry, in colleges and universities, in government agencies, and in health-related institutions and organizations.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog. Academic requirements for maintaining graduate registration are determined by the Graduate College and by the individual divisions of the College of Pharmacy.

For more information about graduate study, visit the College of Pharmacy web site.

**Facilities and Resources**

**Pharmacy Building**

The Pharmacy Building is located on the University's Health Science Campus, in close proximity to the Carver College of Medicine, College of Dentistry, College of Nursing, and College of Public Health. Also nearby are University of Iowa Hospitals and Clinics, the Bowen Science Building, and the Hardin Library for the Health Sciences.

The Pharmacy Building is a five-story structure designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms and auditoriums, there are well-equipped separate laboratories for instruction at the professional and graduate levels.

The college operates small and large classrooms with state-of-the-art technology. The student practice lab is a technologically advanced licensed pharmacy that provides real and simulated practice experiences. The Banker Student Activity Center provides quiet individual and small-group study environments and houses College of Pharmacy Student Organizations offices.

The building also houses a fully supported Instructional Technology Center (Pharmacy ITC) in the Learning Resource Center. The ITC provides state-of-the-art desktop workstations and laptop computers are available for student checkout. Both desktop and laptop computers have secure connections to the University network for online drug
information searching and printing.

University of Iowa Pharmaceuticals

University of Iowa Pharmaceuticals, a pharmaceutical manufacturing facility registered with the U.S. Food and Drug Administration, develops pharmaceutical dosage forms and has manufactured clinical supplies in compliance with Good Manufacturing Practices since 1974. University of Iowa Pharmaceuticals has clients worldwide, including pharmaceutical companies, biotechnology firms, medical departments, and government agencies. Its staff works closely with clients and pharmaceutics faculty members to produce virtually every type of pharmaceutical dosage form, supplying new pharmaceutical agents for use in clinical trials and other research. The facility combines the former Center for Advanced Drug Development and Division of Pharmaceutical Service. For more information, visit the University of Iowa Pharmaceuticals web site.

Division of Drug Information Service

The Division of Drug Information Service publishes the IDIS (Iowa Drug Information Service), a bibliographical database that provides full-text access to specialized information related to drugs and drug therapy. IDIS reaches subscribers throughout the world. The division also is home to the Iowa Drug Information Network, which serves a network of community pharmacies and family practice sites with drug information resources, educational programs, and direct-response consultations that support the pharmaceutical care initiatives at the network's sites. In addition, the Division of Drug Information Service plays an important educational role for pharmacy students by providing both didactic and experiential teaching in drug information. The division is located on the University's Oakdale Campus.

Courses

Courses for Non-pharmacy Students

Students must be enrolled in the College of Pharmacy to take the college's courses. Undergraduate and graduate students in other majors must have the instructor’s consent to take College of Pharmacy courses.

For Undergraduates

046:029 First-Year Seminar 1 s.h.

For Pharm.D. Students

Clinical and Administrative Pharmacy

046:005 Dean's Pharmacy Forum I 1-2 s.h.
Contemporary issues in pharmacy practice, pharmacy education, and health care.

046:006 Dean's Pharmacy Forum II 1-2 s.h.
Contemporary issues in pharmacy practice, pharmacy education, and health care.

046:007 Career Pathways in Pharmacy 1 s.h.
Career preparation through writing, speaking, reading, and listening; writing résumés, curricula vitae, cover letters; interviewing techniques; electronic portfolios; web-based career information; guest speakers from pharmacy associations, major chains; workshop approach. Prerequisite: P3 standing.

046:011 PDAs and Electronic Drug Information Sources 2 s.h.
Introduction to Palm OS PDA and web-based drug information sources for pharmacy students.

046:012 Survey of Basic Pharmaceutical Sciences 1-2 s.h.
Aspects of drug discovery and development; seminar with guest speakers from industry. Prerequisite: admission to Pharm.D. program.

046:013 Seminars in Ambulatory Care Pharmacy 2 s.h.
Additional experience in the practice of clinical pharmacy; focus on key therapeutic areas where ambulatory care clinical pharmacists currently have a significant impact improving patient care, including anticoagulation management, hyperlipidemia management, and diabetes management; opportunity to develop expertise in clinical decision making, improve problem solving abilities, and continued development in writing and oral presentation skills. Prerequisites: 046:154, 046:156, and P3 standing.
046:014 Special Topics in Acute Care
Pharmacology for common but varied acute care medicine topics; review of disorder, therapeutic goals, treatment plans, patient counseling, monitoring patient outcomes; lecture or case-based classes; acute and chronic renal failure; peritoneal and hemodialysis; diabetic ketoacidosis; rabies; shock, vasopressors, fluids; ACLS; deep venous thrombosis, stress ulcer prophylaxis; burns; sedation, neuromuscular blockage; opioids; multiple sclerosis. Prerequisites: BLS certification, 046:149, 046:154, 046:155, 046:156, 046:158, and 046:159. Corequisites: 046:164 and 046:165.

046:018 Journey Through Illness
Chronic illness from a patient's perspective; discussion with patients.

046:050 Pharmacy Practice Lab I
Practical application of scientific and clinical knowledge used in the provision of pharmaceutical care; activities include communication with patient and members of the healthcare team, prescription compounding, pharmacy calculations, and use of drug information resources. Prerequisite: P1 standing.

046:051 Pharmacy Practice Lab II
Practical application of scientific and clinical knowledge used in the provision of pharmaceutical care; activities include prescription compounding, pharmacy calculations, communication skills, prescription counseling, and applications of drug information skills through secondary searching of the primary literature. Prerequisites: 046:050 and P1 standing.

046:066 Pharmacy Computer Systems
Fundamentals of data storage and retrieval for pharmacy information systems.

046:102 Pharmacy Workshop
Independent study.

046:103 Fundamentals of Evaluating Clinical Research
Basic concepts for evaluation of clinical trials published in primary biomedical and pharmacy literature; design, methods, outcomes, statistical analysis, and generalizability of results. Prerequisite: P1 standing.

046:104 Pharmacy Law and Ethics
Legal and moral aspects involved in the practice of pharmacy. Prerequisite: P1 standing.

046:105 Alternative and Complementary Medicine
Prerequisite: (for 046:105) P4 standing. Same as 078:210, 096:182.

046:106 Clinical Practice Skills I: Theory and Application
Exploration and development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Corequisite: 046:155.

046:107 Clinical Practice Skills II: Critical Patient Analysis
Continuation of 046:106; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P2 standing. Corequisite: 046:158.

046:108 Clinical Practice Skills III: Applied Patient Management
Continuation of 046:107; development of professional skills required for delivery of patient care; patient assessment, clinical decision making, communication (written and oral), teamwork. Prerequisite: P3 standing. Corequisite: 046:164.

046:115 Drug Literature Evaluation
Study design methods, drug information techniques and skills; skill development in critical analysis and evaluation of published reports of drug use and drug trials, assessment of validity of reports, trials and studies, assessment of generalizability of results to individual patients and patient groups; laboratory experience in biomedical literature analysis, evaluation.

046:116 Pharmacy Practice Lab III
Practical application of scientific and clinical knowledge in the provision of patient centered care; activities include patient self-care assessment and counseling, prescription interpretation and counseling, compounding, prescriptions, applications of drug information, use of patient screening tools, physical assessment, and pharmacy law. Pre- or corequisites: 046:149 and 046:154.

**046:117 Pharmacy Practice Lab IV**
2 s.h.
Practical application of scientific and clinical knowledge in the provision of patient centered care; activities include providing medication therapy management for patients, patient counseling, and application of drug information skills. Pre- or corequisites: 046:155 and 046:156.

**046:118 Pharmacy Practice Lab V**
2 s.h.
Practical application of scientific and clinical knowledge in the provision of patient centered care; activities include medication therapy management for patients, patient counseling, and application of drug information skills. Pre- or corequisites: 046:158 and 046:159.

**046:119 Pharmacy Practice Lab VI**
2 s.h.
Practical application of scientific and clinical knowledge in the provision of patient-centered care; activities include medication therapy management for patients, patient counseling, and application of drug information skills. Pre- or corequisites: 046:164 and 046:165.

**046:121 Substance Abuse**
3 s.h.
Themes and concepts in substance abuse and treatment; stimulants, depressants, alcohol, opiates, hallucinogens, steroids; drug abuse prevention and treatment, including dual diagnosis, from cradle to the grave.

**046:122 Social Aspects of Pharmacy Care**
2 s.h.
Conceptual issues related to social and behavioral components of pharmacy care; social construction of health and illness, medication use process, health communications, cultural competence, public health.

**046:126 International Perspectives: Xicotepec**
3 s.h.
Introduction to providing service to a community in a less developed country; student projects intended to improve community life in Xicotepec. Same as 053:126.

**046:127 Pharmaceuticals Management for Underserved Populations**
3 s.h.
Experience analyzing problems and developing strategies based on real-world drug management cycle issues; the role of WHO-TRIPS, government, and NGOs in the selection and use of pharmaceuticals.

**046:129 Pharmaceutical Economics and Insurance**
3 s.h.
Financing of health care in the U.S.; insurance and reimbursement in pharmacy and pharmacoeconomics.

**046:130 Core Principles in Pharmaceutical Socioeconomics**
3 s.h.
Organization and financing of the U.S. health care system, role of pharmaceuticals in health care, role of pharmacists in health care, patient influence on health care decisions. Prerequisite: a microeconomics course.

**046:139 Pharmacy Management and Marketing**
2 s.h.
Application of management principles to pharmacy practice; marketing techniques for pharmacy practice; operations, human resources, finance, quality improvement and service marketing management.

**046:146 End-of-Life Care for Adults and Families**
2-4 s.h.
End-of-life issues in care of adults, older adults, and their families. Prerequisites: 096:135 and 096:136, or R.N. student standing, or consent of instructor. Same as 050:147, 096:147, 153:147.

**046:149 Introduction to Therapeutics/Special Population**
2 s.h.
Treatment modalities that promote health and treat common diseases; common laboratory and diagnostic procedures used to diagnose and monitor diseases; basic types of adverse drug reactions. Prerequisite: P2 standing.

**046:154 Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics**
2 s.h.
Pharmacotherapy for endocrine and ophthalmologic disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

**046:155 Respiratory and Dermatologic Therapeutics**
2 s.h.
Pharmacotherapy for respiratory and dermatology disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:156 Cardiovascular Therapeutics  
Pharmacotherapy for cardiovascular disorders; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:158 FEN, GI, and Renal Therapeutics  
Pharmacotherapy for fluid/electrolyte/nutrition disorders; gastrointestinal and renal diseases; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:159 Rheumatology, Immunology, Hematology, Oncology, and Transplantation Therapeutics  
Pharmacotherapy for rheumatology, immunology, hematology, oncology, and transplantation; review of disorders, treatment goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P2 standing.

046:164 Neurology/Psychiatry Therapeutics  
Pharmacotherapy for psychiatric and neurologic disorders; review of disorders, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.

046:165 Infectious Disease Therapeutics  
Pharmacotherapy for infectious diseases; review of disease, therapeutic goals, treatment plans, patient counseling, monitoring of patient outcomes. Prerequisite: P3 standing.

046:169 Introduction to Pharmacogenomics  
Introduction to pharmacogenetics in pharmacy; laboratory techniques, application of pharmacogenetics to clinical pharmacy.

046:170 Clinical Pharmacokinetics  
Application of pharmacokinetics to the clinical setting. Prerequisite: P3 standing.

046:171 Nonprescription Pharmacotherapy  
Introduction to nonprescription medications; development of patient assessment and consultation skills; understanding of pharmacist's role in patient self-care.

046:174 Pharmacy Service Development  
Issues and approaches used to develop pharmacy services; planning, service design, payment, promotion, quality improvement. Prerequisite: P3 standing or consent of instructor.

046:176 Immunization Theory and Practice  
Preparation for administering routine immunizations safely and responsibly under specific order of a prescriber; preparation for administering vaccinations under protocol according to rules of the Iowa Boards of Pharmacy and Medical Examiners. Prerequisites: 046:159 and P3 standing.

046:253 Elective: Economics and Treatment Choice  
Introduction to patient and population pharmacoeconomic modeling; clinical decision, cost-minimization, cost-effectiveness, cost-utility, and cost-benefit analysis.

046:344 PSE Selective: Insurance and Reimbursement  
Insurance and reimbursement for prescription drugs and pharmacist services; related policy issues. Prerequisite: P3 standing.

046:353 PSE Selective: Economics and Treatment Choice  
Patient and population pharmacoeconomic modeling; clinical decision analysis, cost-minimization analysis, cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis. Prerequisite: P3 standing.

046:355 PSE Selective: Social Pharmacy  
Behavioral and social aspects of drug use in society; therapeutic uses of medications, pharmaceutical care systems, pharmacy-related health behaviors. Prerequisite: P3 standing.

046:356 PSE Selective: Marketing and Healthcare  
2 s.h.
Marketing concepts and principles applied to health care, especially pharmacy and pharmaceuticals; marketing management, patient behavior, marketing plan, marketing mix, promotion. Prerequisite: P3 standing.

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>046:357</td>
<td>Topics in Community Pharmacy Management</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Focus on building practical knowledge and understanding of business principles. Prerequisite: 046:130 or consent of instructor.</td>
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<tr>
<td>046:377</td>
<td>Health Disparities and Cultural Competence</td>
<td>2-4 s.h.</td>
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<td></td>
<td>Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence. Same as 096:125, 172:135.</td>
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<tr>
<td>046:398</td>
<td>PSE Selective: Hospital Pharmacy Practice Management</td>
<td>2 s.h.</td>
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<td>Organizational structure of pharmacy departments in hospitals and health care systems; models for delivery of pharmaceutical care; pharmacy's role in drug-policy decision making; provision of drug information; clinical and distributive pharmacy services; control of pharmacy and pharmacy costs; use of information technology and automation for service delivery; supervisory management; quality improvement. Prerequisite: P3 standing.</td>
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**Clinical and Administrative Pharmacy Professional Experience**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>046:001</td>
<td>Introduction to Pharmacy Practice</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Exposure to the pharmacy profession through varied shadowing experiences in practice settings. Repeatable. Prerequisite: P1 standing.</td>
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<tr>
<td>046:002</td>
<td>Introduction to Community Pharmacy Practice</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Exposure to community pharmacy through activities focusing on drug distribution, legal requirements, communication, patient interaction; during breaks in P2 year. Repeatable. Prerequisite: P2 standing.</td>
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<tr>
<td>046:003</td>
<td>Introduction to Clinical Pharmacy Practice</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Clinical practice experience observing and participating in clinical activities with P4 students, faculty, and other health care providers. Repeatable. Prerequisite: P3 standing.</td>
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<tr>
<td>046:004</td>
<td>Student Pharmacist Professionalism</td>
<td>1 s.h.</td>
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<tr>
<td></td>
<td>Participation in activities promoting leadership and professional learning, and service learning; required participation P1 through P3 years. Repeatable.</td>
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<tr>
<td>046:008</td>
<td>Introduction to Hospital Pharmacy Practice</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Exposure to hospital pharmacy through activities focusing on drug distribution, legal requirements, communication, patient interaction; during breaks in P2 year. Repeatable. Prerequisite: P2 standing.</td>
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<tr>
<td>046:136</td>
<td>Elective: Academic Rotation</td>
<td>4 s.h.</td>
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<tr>
<td></td>
<td>Practice experience delivering pharmacy education with a College of Pharmacy faculty member. Prerequisite: P4 standing.</td>
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<tr>
<td>046:140</td>
<td>Elective: Ambulatory Care Rotation</td>
<td>4 s.h.</td>
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<td></td>
<td>Clinical experience providing pharmaceutical care in specialty outpatient settings. Prerequisite: P4 standing.</td>
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<tr>
<td>046:141</td>
<td>Elective: Community Management Rotation</td>
<td>4 s.h.</td>
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<td>Practice exposure to community pharmacy operations and management at the store, district, or corporate level. Prerequisite: P4 standing.</td>
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<tr>
<td>046:142</td>
<td>Elective: Compounding/Complimentary Alternative Medicine Rotation</td>
<td>4 s.h.</td>
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<td>Clinical work in a community setting with focus on team approach; experience developing extemporaneous compounds to optimize patient care and/or integrating traditional and nontraditional medicine. Prerequisite: P4 standing.</td>
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<tr>
<td>046:143</td>
<td>Elective: Critical Care Medicine Rotation</td>
<td>4 s.h.</td>
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</tbody>
</table>
Practice experience providing pharmaceutical services to intensive care unit patients. Prerequisite: P4 standing.

046:144 Elective: Insurance and Reimbursement 2-3 s.h.
Insurance and reimbursement for prescription drugs and pharmacist services; related policy issues.

046:161 Elective Drug Information Rotation arr.
Practice experience applying drug information knowledge to service and research projects. Prerequisite: P4 standing.

046:178 Hospital Pharmacy Rotation 4 s.h.
Instruction and practical experience in various components of hospital pharmacy; emphasis on hospital organization, inpatient and outpatient services, IV admixtures, unit dose, and clinical services. Prerequisite: P4 standing.

046:179 Community Pharmaceutical Care Rotation 4 s.h.
Clinical experience in the community setting; emphasis on delivery of pharmaceutical care. Prerequisite: P4 standing.

046:180 Acute Care Medicine Rotation arr.
Clinical experience applying therapeutic skills for the pharmacotherapeutic management of patients on general medicine or specialty inpatient areas. Prerequisite: P4 standing.

Clinical practice experience applying primary care therapeutics in family medicine practice settings. Prerequisite: P4 standing.

046:182 Elective: Pediatrics Rotation 4 s.h.
Clinical experience in drug therapy management of general and specialty pediatric patients. Prerequisite: P4 standing.

046:183 Community Pharmacy Rotation 4 s.h.
Practicum experience in community pharmacy; drug distribution, communication with patients, management functions. Prerequisite: P4 standing.

046:184 Elective: Psychiatry Rotation 4 s.h.
Clinical experience in the rational use of drugs in psychiatric disorders. Prerequisite: P4 standing.

046:185 Elective: Neurology Rotation 4 s.h.
Clinical experience in the pharmacotherapeutic and pathophysiologic considerations of neurological disorders. Prerequisite: P4 standing.

046:186 Elective: Surgery Rotation arr.
Clinical experience in drug therapy management on a surgery unit. Prerequisite: P4 standing.

046:187 Elective: Nuclear Pharmacy Rotation arr.
Practical experience in the handling and clinical use of radiopharmaceuticals. Prerequisite: P4 standing.

046:188 Elective: Pharmacy Practice Underserved Population Rotation 4 s.h.
Opportunity to learn the best practices for pharmaceutical management; approaches to enhance access to and appropriate use of medicines in underserved and resource-limited environments. Prerequisite: P4 standing.

046:189 Elective: Pharmacy Rotation arr.
Selected practice experiences in various pharmacy practice settings. Prerequisite: P4 standing.

046:192 Elective: Long Term Care Rotation 4 s.h.
Practice in consulting and providing services to varied long-term patient care environments. Prerequisite: P4 standing.

046:193 Elective: Home Health Care Rotation 4 s.h.
Clinical experience in the team approach to health care delivery, including total parenteral nutrition, chemotherapy, intravenous antibiotics, lab analysis, hospice care, and pain management. Prerequisite: P4 standing.

046:194 Elective: Managed Care Rotation 4 s.h.
Practice experience in providing pharmaceutical care or pharmacy-related services in a managed care organization. Prerequisite: P4 standing.
046:196 Ambulatory Care Rotation
Clinical experience in providing pharmaceutical care in outpatient clinic settings. Prerequisite: P4 standing.

046:197 Elective: Hematology/Oncology Rotation
Drug therapy management of oncology patients and patients with hematologic malignancies, aplastic anemia, sickle cell disease, hemophilia. Prerequisite: P4 standing.

046:198 Elective: Hospital Pharmacy Practice Management
Practice management issues; organizational structure, service delivery models, drug policy, drug and pharmacy costs, use of technology and informatics, supervision, quality improvement.

046:199 Elective: Research Rotation
Practice experience in basic pharmaceutical or clinical research; proposal, study design, data collection and analysis, presentation of results. Prerequisite: P4 standing.

046:300 Elective: Emergency Medicine Rotation
Clinical experience providing pharmaceutical care for patients treated in the emergency department. Prerequisite: P4 standing.

046:301 Elective: Hospital Management Rotation
Practice experience in hospital pharmacy operations and management. Prerequisite: P4 standing.

046:302 Elective: Infectious Disease Rotation
Clinical experience providing pharmacotherapeutic management of patients receiving antimicrobial medications. Prerequisite: P4 standing.

046:303 Elective: Medication Use Evaluation Rotation
Practical experience in drug use evaluation to improve patient outcomes. Prerequisite: P4 standing.

046:304 Elective: Pharmacy Industry Rotation
Practice experience in an area of the pharmaceutical industry. Prerequisite: P4 standing.

046:305 Elective: Pharmacy Regulatory Rotation
Practice experience with a pharmacy regulatory body. Prerequisite: P4 standing.

046:306 Elective: Professional Association Rotation
Practice experience in professional association management environment at the state or national level. Prerequisite: P4 standing.

046:307 Elective: Veterinary Pharmacy Rotation
Practice experience in managing drug therapy for animals. Prerequisite: P4 standing.

046:308 Elective Advanced Community Pharmacy Rotation
Community pharmacy experience emphasizing patient-centered care. Prerequisite: P4 standing.

Medicinal and Natural Products Chemistry

046:128 Medicinal and Natural Products Chemistry I: Biotechnology and Chemotherapy
Organic and inorganic medicinal and therapeutic agents of natural and synthetic origin; physical, chemical, biological, and biochemical properties as they relate to medicinal and therapeutic effects; comparative biological activity and toxicity; detoxication mechanisms; functional group chemistry; nomenclature; chemistry of radiodiagnostic and therapeutic agents; introduction to biopharmaceutical analysis; first of a three-course sequence. Prerequisites: 004:122, 061:112, and 099:162 or equivalents, and P1 standing.

046:131 Medicinal and Natural Products Chemistry II: Pharmacodynamic Agents
Medicinal chemistry of pharmacodynamic agents; introduction to peptides and proteins, thyroid hormone, diabetes, vaccines, gene therapeutics, NSAIDs, cardiovascular drugs, antihistamines, anticancer drugs; second of a three-course sequence. Prerequisites: 046:128 and P2 standing.
046:132 Medicinal and Natural Products Chemistry III: Medicinal Neurochemistry 3 s.h.
Receptor site theory; steroids, lipids, and prostaglandins; sedatives and hypnotics; drugs of abuse; cholinergics;
excitatory amino acids and anticonvulsants; major analgesics; adrenergics; psychotherapeutics; third of a three-course
sequence. Prerequisites: 046:128, 046:131, and P2 standing.

046:209 Drug Discovery and Mechanisms 3 s.h.
Process of modern drug discovery, focus on high throughput screening strategies, target validation, pharmacological
characterization of new compounds; mechanism of drugs targeting G protein coupled receptors, ion channels and
transporters, targets in biological systems. Prerequisites: graduate standing and consent of instructor.

Pharmaceutics

046:101 Pharmacy Projects 1-3 s.h.
Basic and applied research problems of pharmaceutical interest.

046:110 Drug Delivery I 4 s.h.
Design and development of drug delivery systems; mathematical analysis of dosage form performance; applications of
advanced technology in emerging systems. Prerequisite: consent of instructor.

046:111 Drug Delivery II 4 s.h.
Continuation of 046:110. Prerequisite: 046:110.

046:123 Pharmaceutics I: Solutions 4 s.h.
Application of physical and chemical principles to formulation, preparation of liquid dosage forms, including solution,
colloids, ointments, emulsions. Prerequisite: P1 standing.

046:124 Pharmaceutics II: Solids and Semi-solids 4 s.h.
Properties of solids; formulation, preparation, evaluation of solid dosage forms. Prerequisite: P1 standing.

046:138 Pharmacokinetics and Biopharmaceutics 3 s.h.
Qualitative and quantitative description of kinetics of drug absorption, distribution, and elimination, including
physiological factors that influence each process; adjustment of dosing regimens for optimizing therapeutic drug levels
in the body. Prerequisites: 046:123 and 046:124.

046:173 Parenteral Products and Technology 2 s.h.
Knowledge and application of parenteral products and the technology used to compound and administer them.
Prerequisites: 046:051 and 046:123.

046:238 Drug Delivery: Principles and Applications I 4 s.h.
Advanced design and development of drug delivery systems; mathematical analysis of dosage form performance;
aplications of advanced technology in emerging systems. Prerequisite: consent of instructor.

046:239 Drug Delivery: Principles and Applications II 4 s.h.
Continuation of 046:238. Prerequisites: 046:238 and consent of instructor.

For Graduate Students

Clinical and Administrative Pharmacy

046:147 Introduction to Research Methods 3 s.h.
Scientific inquiry, experimental design, data collection, statistical methods used in the study of health services and
clinical investigations; focus on understanding the research process and evaluating published studies. Prerequisite:
consent of instructor. Recommended: introductory statistics.

046:213 Pharmaceutical Socioeconomics Seminar 1-2 s.h.
Recent research in pharmacy administration. Repeatable.
046:243 Clinical Pharmaceutical Sciences Research

046:245 Analytical Techniques in Therapeutics
Basic concepts and techniques of HPLC, Elisa/RIA, PCR, in vitro pharmacodynamic models, cell culture, animal models; identification of problems, solutions.

046:251 Pharmaceutical Socioeconomics Research

046:255 Social Aspects of Pharmacy Care
Conceptual issues related to social and behavioral components of pharmacy care; social construction of health and illness, medication use process, health communications, cultural competence, public health.

046:256 Elective: Marketing and Healthcare
Research on marketing's impact on delivery and consumption of health care, and on changes in marketing that result from evolution of health care systems.

046:257 Foundation Literature in Pharmaceutical Socioeconomics
Issues related to pharmacy administration, social and behavioral pharmacy, pharmacy education.

046:261 Analytic Issues in Health Services Research I
Analytic tools used in health services research; focus on applications in nonexperimental research settings, such as analyses using administrative claims data or preexisting public use data sets. Prerequisites: 171:162 and consent of instructor. Same as 174:261.

046:262 Analytic Issues in Health Services Research II
Continuation of 174:261; advanced applications, including panel data and qualitative response models. Prerequisite: 174:261. Same as 174:262.

046:263 Models of Patient Behavior and Choice
Theoretical models used to describe behavior and choice in pharmaceutical socioeconomic research; models from economics, health services research, health behavior, clinical decision making.

046:264 Models of Provider Behavior and Choice
Theoretical background for study of provider decision making and behavior; models based on a classic economic approach, models used to study provider behavior.

046:269 Introduction to Clinical Pharmacogenomics
Basic pharmacogenetic techniques; use of pharmacogenomics in clinical pharmacy. Prerequisite: 002:128.

046:280 Clinical Pharmaceutical Sciences Seminar
Research by faculty, graduate students.

046:284 Introduction to Pharmaceutical Sciences Research
Key principles and methods in pharmaceutical sciences research. Prerequisite: consent of instructor.

046:378 Translation Research and Clinical Drug Development
Clinical drug development; preclinical studies and clinical trials; phase I, II, and III clinical trials, including regulatory considerations.

046:379 Principles of Experimental Therapeutics
Introduction to key principles and concepts for research in experimental therapeutics; basic principles related to drug disposition, toxicity, and efficacy.

046:380 Applied Clinical and Translational Science
Application of clinical and translational science in a multidisciplinary collaborative environment to develop, conduct, and report research.
Medicinal and Natural Products Chemistry

046:135 Perspectives in MNPC Research 1 s.h.
Contemporary research in medicinal chemistry and natural products.

046:137 Enzymatic Basis of Drug Metabolism 3 s.h.
Current literature on catalytic and physical properties, distribution, and substrate specificity of enzymes involved in mammalian drug metabolism. Prerequisites: 004:122 and 099:162, or consent of instructor.

046:150 Synthetic Strategies in Medicinal Chemistry 3 s.h.
Modern chemical methods for construction of carbon-carbon bonds commonly used in synthesis of natural products; strategic disconnections for the syntheses of these molecules. Prerequisites: 004:122 and 046:132.

046:211 Total Synthesis of Natural Products 3 s.h.
Total synthesis of natural products; use of strategies, tactics, efficiency, selectivity, synthetic maneuvering. Prerequisite: consent of instructor.

046:214 Pharmaceutical and Chemical Toxicology 3 s.h.
Principles and mechanisms of chemical toxicology related to drugs and environmental agents; modern toxicological research methods. Prerequisite: consent of instructor.

046:215 Current Medicinal Chemistry 3 s.h.
Modern techniques used in drug discovery; important drug classes, their chemical mechanism of action. Prerequisite: 046:132 or consent of instructor.

046:217 Medicinal and Natural Products Chemistry Research 1-2 s.h.

046:219 Analytical Biochemistry 3 s.h.
Application of modern chromatographic and detection methods used to isolate, characterize, and quantify drugs and macromolecules.

046:227 Medicinal and Natural Products Chemistry Seminar 1-2 s.h.

046:275 Perspectives in Biocatalysis 1-3 s.h.

Pharmaceutics

046:148 Pharmacokinetics and Pharmacodynamics 3 s.h.
Kinetics of drug absorption, distribution, and elimination, including development of mathematical models. Prerequisites: two semesters of calculus and one semester of statistics, or consent of instructor.

046:157 Quantitative Research Methods in Pharmacy 4 s.h.
Lecture and laboratory; collection and interpretation of analytical data; instrumental analysis as applied to pharmaceutical quality control; separation techniques.

046:200 Special Topics in Nanotechnology 1 s.h.
Special topics in nanotechnology.

046:202 Pharmacy: Selected Topics 1-4 s.h.
Recent advances and contemporary research in pharmaceutics. Repeatable.

046:206 Stability of Pharmaceuticals 3 s.h.
Mechanisms of degradation of pharmaceuticals; prediction of shelf life of pharmaceuticals, stabilization. Prerequisite: 004:132.
046:207 Polymers in Pharmaceutics
Polymer science, its implications in pharmaceutics; polymers useful as excipients in design of controlled and/or sustained release products.

046:225 Product Development
Application of physico-chemical principles to formulation and design of pharmaceutical dosage forms.

046:229 Advanced Pharmacokinetics and Pharmacodynamics
Selected topics, including nonlinear curve fittings. Prerequisite: 046:148.

046:231 Pharmacy Seminar
Repeatable.

046:233 Pharmaceutics Research

046:235 Equilibria Processes
Equilibria pertaining to ionic systems, complexation, partitioning, solubility. Prerequisite: 004:131.

046:236 Surface Phenomena
Behavior of matter in phase boundaries, especially adsorptive processes at liquid-solid and vapor-solid interfaces. Prerequisite: 004:131.

046:237 Transport Phenomena
Diffusion and mass transport phenomena related to pharmaceutical systems. Prerequisite: 004:131.

046:290 Tissue Engineering
Introduction to tissue engineering; scaffolds, fundamentals, principles. Same as 051:175, 052:227.
College of Public Health

Dean: Susan J. Curry
Associate dean, faculty affairs and research: Leon F. Burmeister
Associate dean, education and student affairs: Tanya Uden-Holman
Associate dean, public health practice: Christopher G. Atchison
Assistant dean and director, M.P.H. program: Mary Lober Aquilino
Graduate degrees: M.H.A., M.P.H., M.S., Ph.D.
Nondegree programs: Certificate in Agricultural Safety and Health, Certificate in Public Health, Certificate in Emerging Infectious Disease Epidemiology
Web site: http://www.public-health.uiowa.edu

The College of Public Health, established in 1999, is a partner with the Carver College of Medicine and the Colleges of Dentistry, Nursing, and Pharmacy in striving to improve human health and well-being. Consistent with the interdisciplinary traditions of public health, the college also collaborates with non-health science colleges across the University and with other Board of Regents, State of Iowa institutions, state and local agencies, and the private sector.

A population-based approach to health is a distinguishing feature of public health and of the college. For public health practitioners—a wide range of professionals including physicians, nurses, dentists, pharmacists, social workers, nutritionists, environmental scientists, health educators, and health service administrators—the primary focus is on the health of entire communities rather than individual patients. Tools that public health professionals use to improve and enhance quality of life include analytical methods to identify, describe, and monitor the health of communities and populations at risk; education and prevention programs, methods of assuring access to appropriate and cost-effective care; and formulation of sound public policies.

The public health approach has led to many important health improvements over the past century. Vaccination campaigns, improved sanitation, fluoridation of drinking water, and efforts to reduce tobacco use are among the most recognizable public health initiatives. Public health programs also have led to safer workplaces, reduction of deaths from coronary heart disease and stroke, improved motor vehicle safety, and creation of effective health systems to provide care to those who need it. In the future, public health professionals will play an important role worldwide in seeking better approaches to complex issues such as quality of life for the elderly, drug and alcohol abuse, teen pregnancy, new and emerging infectious diseases, food safety, effects of bioterrorism, and nutrition.

The College of Public Health provides educational opportunities to students campuswide. In addition to training and educating public health students, the college welcomes students from the Tippie College of Business, the Carver College of Medicine, and the Colleges of Dentistry, Education, Engineering, Law, Nursing, and Pharmacy who enroll in public health classes. Undergraduate students in the College of Liberal Arts and Sciences and graduate students from programs such as anthropology, microbiology, and statistics also register for public health courses. The college’s faculty members, staff members, and graduate and postdoctoral students contribute to teaching and research activities throughout the health sciences campus and provide services to Iowa and the nation. Partnerships for teaching and research extend across the campus. This background provides a rich array of educational opportunities.

The college includes the Departments of Biostatistics, Community and Behavioral Health, Epidemiology, Health Management and Policy, and Occupational and Environmental Health. It offers four graduate degrees: Master of Health Administration (M.H.A.), Master of Public Health (M.P.H.), Master of Science (M.S.), and Doctor of Philosophy (Ph.D.). It also offers the Certificate in Agricultural Safety and Health, the Certificate in Public Health, and the Certificate in Emerging Infectious Disease Epidemiology.

The college is accredited by the Council on Education for Public Health (CEPH), the accrediting body for the nation’s schools and colleges of public health. Two programs in the college currently are accredited: the industrial hygiene program is accredited by the Accreditation Board for Engineering and Technology (ABET) and the American Board of Industrial Hygiene (ABIH), and the Master of Health Administration is accredited by the Commission on Accreditation of Healthcare Management Education (CAHME).

Admission

Each department in the College of Public Health has an admission committee. Admission criteria usually include a satisfactory cumulative grade-point average; Graduate Record Examination scores; references; résumés; and for applicants whose first language is not English, scores on the Test of English as a Foreign Language (TOEFL). Other evaluation criteria may include oral and on-campus interviews, written statements, special emphasis on science and math courses, and a match of available faculty mentors with student interests. Application deadlines vary by department.

Applicants to College of Public Health programs must meet the admission requirements of the Graduate College. For detailed information about Graduate College policies, including application requirements and procedures, see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Faculty
The college's faculty includes members with single appointments in the College of Public Health as well as those with joint appointments in other University of Iowa colleges, including the Carver College of Medicine and the Colleges of Dentistry, Engineering, Law, Liberal Arts and Sciences, Nursing, and Pharmacy. In addition, the college's faculty includes adjunct members from Drake University, Iowa State University, the University of Northern Iowa, the Iowa State Department of Public Health, the Iowa State Hygienic Laboratory, the Iowa Heart Center (in Des Moines), University of Iowa Hospitals and Clinics, and the National Institutes of Health.

Research Centers and Institutes

The College of Public Health is home to 27 centers and institutes that conduct research and provide public service. These multidisciplinary centers and institutes--most of which are supported by federal grants--focus their investigative efforts on important public health topics. They conduct an array of outreach, service, and policy activities through which the College of Public Health engages with agencies, communities, and organizations throughout Iowa, the Midwest, the nation, and the world. Students are encouraged to explore opportunities for involvement with any of the college's centers and institutes.

For more information, see College of Public Health Based Centers (http://www.public-health.uiowa.edu/research/centers.html) on the college's web site.

Facilities

The college's administrative offices are housed in the University of Iowa Hospitals and Clinics, on the University's health sciences campus. Faculty offices are located on the health sciences campus in the College of Medicine Administration Building, General Hospital, John Colloton Pavilion, the Medical Education Building, Medical Laboratories, and Westlawn; on the main campus in the Jefferson Building, MacLean Hall, Schaeffer Hall, and University Capitol Centre; and on the Oakdale Campus in Oakdale Hall and at the Institute for Rural and Environmental Health. Specialized laboratories also are located on the Oakdale Campus.

Eight student computer laboratories are housed at the college. More than 55 software packages are available for student use, most without charge. Software includes Microsoft Office products, SAS, and S+. Some specialty labs are equipped with RedHat Linux and are loaded with R, Macanova, Xlispstat, Mathematica, and other software.

Students, faculty, and staff draw on extensive library resources available across campus. Hardin Library for the Health Sciences serves as a central resource for all of the health sciences colleges. Hardin Library's Information Commons, a state-of-the-art health sciences educational technology facility, provides central support and delivery for courseware development, classroom instruction, health-related research, and independent learning. It offers high-end multimedia development workstations, networked electronic classrooms, a case-based learning and conference room, and information research workstations for searching health-related databases and the Internet.
Agricultural Safety and Health

Director: Kelly Donham
Graduate nondegree program: Certificate in Agricultural Safety and Health

The College of Public Health offers the Certificate in Agricultural Safety and Health via distance education. The graduate-level program trains students to detect safety and illness hazards and to treat and prevent farm-related illnesses, injuries, and deaths.

Certificate in Agricultural Safety and Health

The Certificate in Agricultural Safety and Health requires 12 s.h. The program is intended for health and safety professionals nationwide as well as for students at The University of Iowa and other postsecondary institutions who are enrolled in health or safety programs and would like to add an agricultural health component to their training. Completion of the program may enhance employment opportunities in health care delivery, government, and the private sector.

The certificate program is accredited by the Council on Education in Public Health.

Students complete six courses, listed below. Although the certificate is offered via distance education, off-campus students are encouraged to take 175:209 Rural Health and Agricultural Medicine on campus; the course is offered twice yearly, once during spring semester and again as an intensive five-day workshop in June. Students may be able to complete 175:203 Preceptorship in Occupational and Environmental Health in their own communities.

175:172 Independent Study in Occupational and Environmental Health 1 s.h.
175:196 Agricultural Safety: Theories and Practice 2 s.h.
175:203 Preceptorship in Occupational and Environmental Health 2 s.h.
175:209 Rural Health and Agricultural Medicine 3 s.h.

175:180 Occupational and Environmental Health Seminar 1 s.h.
or
175:210 Current Topics in Agricultural Health 1 s.h.

175:192 Occupational Safety 3 s.h.
or
175:230 Occupational Health 3 s.h.

Applicants to the certificate program should hold a bachelor's degree from an accredited university with a g.p.a. of at least 2.50, or have equivalent experience and education. Application materials must include the program's application form, a résumé, and a letter of interest explaining the applicant's current position and education objectives.

For more information about the program's curriculum or faculty, visit the Certificate in Agricultural Safety and Health web site.
The Department of Biostatistics prepares students for professional and academic careers in biostatistics. Graduates find positions in pharmaceutical, health care, and research companies and institutions; in universities and government agencies; and as consultants. The department also provides training for non-biostatistics students.

Current research interests in the Department of Biostatistics include computer intensive statistics, Bayesian methods, design and analysis of clinical trials, longitudinal data analysis, survival analysis, spatial modeling, analysis of data subject to missingness, time series, model selection, quality control, survey sampling, and public health statistics. Biostatistics faculty members work closely with both clinical and basic science investigators on the University of Iowa health sciences campus in the design and analysis of research projects.

Graduate Programs

The department offers a Master of Science and a Doctor of Philosophy in biostatistics. It also offers the biostatistics subtrack for the Master of Public Health; see "M.P.H. Subtrack" below.

Master of Science

The Master of Science in biostatistics requires a minimum of 38 s.h. of graduate credit. The program provides training in the design of experiments and in analysis of data related to biomedical or public health problems. It emphasizes mathematical, statistical, and computer methods for dealing with quantitative information, and provides opportunities for students to gain statistical consulting experience with a variety of problems.

Graduates find career opportunities in many areas, including pharmaceutics, health care, research companies and institutions, consulting firms, universities, and government agencies.

All M.S. students are required to complete an in-depth preceptorship under the direction of a departmental faculty member and a final comprehensive-style examination.

Graduate students in biostatistics must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

REQUIRED COURSES

All of these:

171:173 Design of Sample Surveys 3 s.h.
171:178 Biostatistical Computing 3 s.h.
171:201-171:202 Biostatistical Methods I-II 8 s.h.
171:203 Biostatistical Methods in Categorical Data 3 s.h.
171:266 Statistical Methods in Clinical Trials 3 s.h.
171:280 Preceptorship in Biostatistics 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.

One of these sequences:

22S:193-22S:194 Statistical Inference I-II (preferred for Ph.D. students) 6 s.h.

One of these:

002:169 Introduction to Bioinformatics 4 s.h.
055:122 Computational Genomics 3 s.h.
061:157 General Microbiology 5 s.h.
069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.
127:191 Human Molecular Genetics 3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
174:102 Introduction to the U.S. Health Care System 3 s.h.
175:197 Environmental Health 3 s.h.

ELECTIVES

At least 3 s.h. from these:

22S:138 Bayesian Statistics 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:248 Computer Intensive Statistics 3 s.h.
22S:255 Linear Models 4 s.h.
171:185 Microarray Data Analysis 3 s.h.
171:230 Statistical Data Mining in Public Health 3 s.h.
171:242 Applied Survival and Cohort Data Analysis 3 s.h.
171:251 Theory of Biostatistics I 4 s.h.
171:252 Theory of Biostatistics II 4 s.h.
171:261 Survival Data Analysis 3 s.h.
171:262 Analysis of Categorical Data 3 s.h.
171:264 Longitudinal Data Analysis 3 s.h.
171:282 Problems/Special Topics in Biostatistics 1 s.h.

M.P.H. Subtrack

The Department of Biostatistics offers the biostatistics subtrack for the Master of Public Health. The subtrack focuses on applying biostatistical methods to public health and biomedical sciences, and applying methodology for design and analysis of research investigations in the health sciences. Graduates of the program are prepared for work as statistical consultants and data analysts for public health projects. See Master of Public Health Program in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy in biostatistics requires a minimum of 79 s.h. of graduate credit, including credit from a master's degree. The program prepares students for professional and academic careers in biostatistics, especially for positions that emphasize developing and applying statistical methodology to solve important biological and public health problems.

All Ph.D. students must successfully complete a qualifying examination, a comprehensive examination, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student's dissertation committee. Other degree requirements include approved electives chosen from Department of Biostatistics and other University of Iowa courses.

Graduate students in biostatistics must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

Requirements for the Ph.D. are as follows.

MASTER OF SCIENCE BACKGROUND

Ph.D. students must take the following courses (26 s.h.) required for the Master of Science in biostatistics. Students who have completed equivalent course work at other institutions may request waivers and/or transfers of credit. Students who earned a Master of Science in biostatistics at The University of Iowa automatically receive credit for these courses.

One of these sequences:

22S:193-22S:194 Statistical Inference I-II 6 s.h.
All of these:

171:201-171:202 Biostatistical Methods I-II  
171:203 Biostatistical Methods in Categorical Data (171:241 may be substituted if taken fall 2006 or earlier)  
171:280 Preceptorship in Biostatistics  
173:140 Epidemiology I: Principles  
One approved biology/public health course

**CORE COURSES**

22S:255 Linear Models  
171:251 Theory of Biostatistics I  
171:252 Theory of Biostatistics II  
171:261 Survival Data Analysis  
171:262 Analysis of Categorical Data  
171:264 Longitudinal Data Analysis

**ELECTIVES**

With approval of their advisors, students choose 15-22 s.h. of graduate-level courses in biostatistics, statistics, genetics, microbiology, and so forth. They may count a maximum of 5 s.h. earned in nonquantitative courses (e.g., community and behavioral health, epidemiology, microbiology) toward the requirement. They also may count courses required for the Master of Science that are not listed under “Master of Science Background,” above, toward the requirement.

Ph.D. students may take the following courses.

002:170 Bioinformatics  
22S:138 Bayesian Statistics  
22S:156 Applied Time Series Analysis  
22S:161 Applied Multivariate Analysis  
22S:195 Probability and Stochastic Processes I  
22S:248 Computer Intensive Statistics  
22S:256 Multivariate Analysis  
171:243 Cohort Data Analysis  
171:280 Preceptorship in Biostatistics (in addition to preceptorship required for M.S.)  
171:290 Advanced Biostatistics Seminar

**DISSERTATION**

171:300 Thesis/Dissertation (at least two semesters in residence)

**Admission**

The biostatistics faculty considers several factors when evaluating applications for admission, including GRE scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. and Ph.D. program applicants must hold a baccalaureate degree, have a cumulative g.p.a. of at least 3.00, and have taken the Graduate Record Examination (GRE) General Test. Applicants whose first language is not English and who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 550-599 (paper-based), 213-249 (computer-based), or 81-99 (Internet-based) on TOEFL are required to take English fluency courses. Applicants who score below those ranges are not considered for admission. In place of TOEFL scores, the department accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0.

All biostatistics applicants and students are required to have strong written and oral communication skills.
All M.S. applicants must be competent in at least one computer programming language. They also must have mathematical sciences training in methods and techniques of single variable and multivariable differential and integral calculus, and in linear algebra.

Completion of an M.S. program in statistics or biostatistics generally is required for admission to the Ph.D. program.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

APPLICATION DEADLINES

M.S. (fall entrance): January 15 (early), March 15 (late)
Ph.D. (fall entrance): January 15 (early), March 15 (late)

Financial Support

A limited number of teaching and research assistantships are available. Assistantships offer financial support and resident tuition with a partial tuition scholarship, and provide valuable on-the-job training experiences.

For information on financing education through jobs, grants, and loans, contact the Office of Student Financial Aid.

Resources

Department of Biostatistics resources and activities include the Biostatistics Consulting Center, the Clinical Trials Statistical and Data Management Center, and the Center for Public Health Statistics. The Biostatistics Consulting Center provides opportunities for students to gain valuable experience working with faculty and staff in the health sciences at The University of Iowa. The Clinical Trials Statistical and Data Management Center serves the statistical design, data management, and analysis needs of a variety of multicenter clinical trials, including studies of new treatments for acute ischemic stroke and studies of islet transportation. The Center for Public Health Statistics facilitates the collection, statistical analyses, and dissemination of health data in support of the University's research, teaching, and service missions and in partnership with the Iowa Department of Public Health.

Biostatistics Courses

171:121 General Biostatistics 4 s.h.
Biostatistics and biostatistical computation; biostatistical aspects of health-related areas--clinical trials, disease modeling, disease mapping, genetics, and epidemiology; brief introduction to survival and longitudinal analyses.

171:151 Biostatistics for Biomedical Research 1 s.h.
Application of statistical techniques to biological data analysis; normal distribution, sampling distribution of the mean, variance, nonparametric methods, linear regression, power, and sample size. Prerequisite: consent of instructor. Same as 156:204.

171:161 Introduction to Biostatistics 3 s.h.
Application of statistical techniques to biological data, including descriptive statistics; probability; normal, binomial, and Poisson distributions; sampling distributions; tests of significance; confidence intervals; analysis of frequency data; simple linear regression. Offered fall and spring semesters. Prerequisite: college algebra.

171:162 Design and Analysis of Biomedical Studies 3 s.h.
Simple and multiple linear regression and correlation; one- and two-way layout considerations in planning experiments; factorial experiments; multiple comparison techniques; orthogonal contrasts. Offered spring semesters. Prerequisite: 171:161 or equivalent. Same as 22S:140.

171:164 Research Data Management 3 s.h.
Overview of problems encountered in gathering and processing data from biomedical investigations; introduction to data management techniques useful in biomedical studies; introduction to Microsoft Access. Offered fall semesters of odd years. Prerequisite: Fortran or C programming capability.

171:173 Design of Sample Surveys 3 s.h.
Challenges in designing sample surveys; emphasis on construction and number of strata, unbiased ratio estimators, multistaged sampling, estimation of variance in complex surveys, double sampling, sampling frame construction problems, panel studies, and problems due to nonresponse. Offered fall semesters. Prerequisite: 22S:154 or 22S:194 or 171:202 or equivalent.

171:174 Introductory Longitudinal Data Analysis 3 s.h.
Statistical models and estimation methods used to analyze correlated data (e.g., same subject measured repeatedly); emphasis on use of statistical software. Offered fall semesters of even years. Prerequisite: 171:161 or equivalent or consent of instructor. Pre- or corequisite: 171:162 or 22S:152 or consent of instructor. Same as 22S:160.

171:178 Biostatistical Computing 3 s.h.
Groundwork in SAS and R programming; emphasis on data management, Monte Carlo simulations, and expectation maximization techniques. Offered fall semesters. Corequisite: 171:201 or consent of instructor. Recommended: C and C++ skills.

171:185 Microarray Data Analysis 3 s.h.
Basic statistical principles and techniques used in bioinformatics, including analyzing microarray gene expression data. Offered spring semesters. Prerequisite: 22S:030 or 22S:101 or 171:161 or consent of instructor. Same as 002:176, 127:176.

171:201 Biostatistical Methods I 4 s.h.
Problem-oriented probability distributions, moments, estimation, parametric and nonparametric inference for one-sample and two-sample problems, analysis of frequency data, linear regression, and correlation analysis, with emphasis on use of computers. Offered fall semesters. Prerequisites: two semesters of calculus and consent of instructor.

171:202 Biostatistical Methods II 4 s.h.
Continuation of 171:201, which is prerequisite; linear regression and correlation, multiple linear regression, multiple factor experiments, multiple comparisons, orthogonal contrasts, block and split-plot designs, confounding interactions, and mixed models. Offered spring semesters. Prerequisite: 171:201.

171:203 Biostatistical Methods in Categorical Data 3 s.h.

171:230 Statistical Data Mining in Public Health 3 s.h.
Introduction to a set of supervised statistical methods (e.g., regression, decision tree, neural network) and some unsupervised methods (e.g., association rules, and clustering) for data analysis in health-related applications. Offered spring semesters of even years. Prerequisites: 171:202, and 22S:153 or 22S:193 or equivalent.

171:241 Applied Categorical Data Analysis 3 s.h.
Overview of methods to analyze categorical data from health science investigations; estimation of rates and risks, measures of relative risk, stratified analysis, logistic regression analysis. Offered fall semesters. Prerequisites: 171:162 and 173:140.

171:242 Applied Survival and Cohort Data Analysis 3 s.h.
Nonparametric and semiparametric methods for survival data; methods of directly comparing standardized rates and standardization mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 171:203 and 171:241.

171:243 Cohort Data Analysis 1 s.h.
Methods of comparing direct standardized rates and standardized mortality ratios; Poisson regression for cohort data. Offered spring semesters of odd years. Prerequisites: 171:241 and consent of instructor.

171:251 Theory of Biostatistics I 4 s.h.
Intermediate study of sufficiency, exponential families, methods of estimation, uniform minimum variance unbiasedness, information, likelihood theory, confidence intervals, the Neyman-Pearson lemma, asymptotic theory and its applications. Offered fall semesters of even years. Prerequisites: 22S:154 or 22S:194, and 171:202 or equivalent.
171:252 Theory of Biostatistics II
Nonparametric hypothesis tests, semiparametric estimation, generalized linear models, generalized estimation equations, generalized linear mixed models, EM algorithm, computer-intensive methods; application of theory learned in 171:251 to classical and new methods in biostatistics. Offered spring semesters of odd years. Prerequisite: 171:251.

171:261 Survival Data Analysis
Types of censoring and truncation; survival function estimation; life tables; parametric inference using exponential, Weibull, and accelerated failure time models; nonparametric tests; sample size calculation; Cox regression with stratification and time-dependent covariates; regression diagnostics; competing risks; analysis of correlated survival data. Offered fall semesters. Prerequisites: 22S:154 or 22S:194, and 171:202 or equivalent. Same as 22S:225.

171:262 Analysis of Categorical Data

171:264 Longitudinal Data Analysis
Introduction to statistical methodology for analyzing data from observational and experimental studies in which the response variable from each subject is measured repeatedly; emphasis on use of statistical software packages and specialized programs. Offered spring semesters of odd years. Prerequisites: 22S:154 or 22S:194, and 171:202 or equivalent.

171:266 Statistical Methods in Clinical Trials
Survey of statistical methods commonly used in clinical trials; methodologic perspective on the design, conduct, and analysis of trials; emphasis on Phase III randomized controlled clinical trials. Offered spring semesters. Prerequisites: 22S:154 or 22S:194, and 171:202.

171:271 Advanced Survival Analysis
Counting process/martingale theory leading to asymptotic results of survival methods; semiparametric regression of accelerated failure time and additive hazard models; multivariate survival models for clustered, multiple event, and recurrent event data; special topics. Prerequisite: 171:261.

171:280 Preceptorship in Biostatistics
Work experience using knowledge and skill acquired in classroom; arranged in conjunction with ongoing departmental or collegiate activities or with governmental agencies or private industry; preparation of prospectus and presentation of research results in a department seminar. Repeatable.

171:281 Independent Study in Biostatistics
In-depth pursuit of an area of special interest in biostatistics requiring substantial creativity and independence. Repeatable.

171:282 Problems/Special Topics in Biostatistics
Didactic material in biostatistics; may include tutorials, seminars, faculty-directed independent work (e.g. literature search, project, short research project). Repeatable.

171:290 Advanced Biostatistics Seminar
Current topics; supervised experience in reading and interpreting biostatistical literature. Offered spring semesters. Prerequisite: consent of instructor.

171:295 Research in Biostatistics
Research that may lead to a dissertation. Repeatable.

171:300 Thesis/Dissertation
Repeatable.
Certificate in Public Health

Coordinator: Amy Engelmann
Undergraduate nondegree program: Certificate in Public Health
Graduate nondegree program: Certificate in Public Health

The College of Public Health offers the Certificate in Public Health via distance education. The program is designed to improve public health practice and public health workforce capacity in Iowa and the upper Midwest. The Certificate in Public Health is intended primarily for individuals in public health practice, those in the workforce, and those interested in acquiring a basic knowledge of public health practice. The program is open to undergraduate and graduate students.

Certificate in Public Health

The Certificate in Public Health requires 12 s.h. All certificate courses are offered on the Internet at least once a year. Some also are offered on the University of Iowa campus and during the College of Public Health Summer Institute.

Certificate students must successfully complete the program's required course work within five years and must maintain a cumulative g.p.a. of at least 2.75 throughout the program. Students must have access to a computer and the Internet.

The following courses are required.

Both of these:
170:101 Introduction to Public Health 3 s.h.
173:099 Evidence-Based Public Health Methods 3 s.h.

Two of these:
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
174:102 Introduction to the U.S. Health Care System 3 s.h.
175:197 Environmental Health 3 s.h.

Applicants to the certificate program must have completed at least 60 s.h. of postsecondary education course work and have a cumulative g.p.a. of at least 2.75. They should submit a statement of their career goals and their reasons for applying to the program, and two letters of reference.

Students who have graduate standing when they complete the certificate course work, and are admitted to the M.P.H. program after earning the certificate, may apply 9 s.h. of credit from the certificate program toward the M.P.H.
Community and Behavioral Health

Interim head: Linda G. Snetselaar
Professors: Elizabeth Altmaier (Psychological and Quantitative Foundations), Julie Andsager (Journalism and Mass Communication), Leslie Baxter (Communication Studies), Joe D. Coulter, Karen Farris (Pharmacy), Jennifer Glass (Sociology), Paul Greenough (History), Ann Marie McCarthy (Nursing), Jerry Suls (Psychology), Michael Teague (Leisure Studies)
Professor emeritus: Peter Nathan
Adjunct professors: Frank Boster, Gene Lutz
Associate professors: Mary Aquilino, Shelly Campo, Kristi Ferguson (Internal Medicine), Faryle Nothwehr, Anne Helene Skinstad, Nancy Thompson
Adjunct associate professors: Kevin Kelly, Connie Kohler, Mary Losch
Assistant professors: Theresa Armstead, Nanette Barkey (Anthropology), Yong-Chan Kim, Erica Prussing (Anthropology), Sandra Ramey (Nursing), Jingzhen Ginger Yang
Adjunct assistant professor: Ralph Wilmoth
Adjunct lecturers: Ro Foege, Dawn Gentsch, Kevin Teale, Laurie Walkner
Graduate degrees: M.S., Ph.D. in Community and Behavioral Health
Web site: http://www.public-health.uiowa.edu/cbh

The Department of Community and Behavioral Health examines the relationship between human behavior and community health and focuses on creating effective strategies for change. Its faculty members come from a variety of disciplines within the social and health sciences, drawn together by an interest in health behavior and promoting healthy communities.

Community and behavioral health students learn how to design, implement, and evaluate interventions directed toward identified public health problems in communities. They learn how public and institutional policy, the media, and community organizations can promote healthy behavior and effect positive change.

Graduate Programs

The department offers a Master of Science in community and behavioral health, with a subtrack in health communication; and a Doctor of Philosophy in community and behavioral health, with an addiction studies subtrack and a health communication subtrack.

It also offers two subtracks and two focus areas for the Master of Public Health: the community and behavioral health subtrack, the health communication subtrack, the nutrition and exercise focus area, and the maternal, child, and family health focus area. See "M.P.H. Subtracks and Focus Areas" below.

Master of Science

The Master of Science in community and behavioral health requires 35 s.h. of graduate credit, including a thesis. The program prepares students for research and professional positions in community and behavioral health or for Ph.D. study in community and behavioral health. The degree is offered with an optional subtrack in health communication; see "M.S. Subtrack in Health Communication" below.

During the first semester, M.S. students work with their academic advisor to develop a plan of study that satisfies their interests and professional goals as well as the program's requirements. Students are required to attend departmental seminars and to complete the following courses.

COLLEGE OF PUBLIC HEALTH CORE

All of these (9 s.h.):

171:161 Introduction to Biostatistics  
172:101 Introduction to Health Promotion and Disease Prevention  
173:140 Epidemiology I: Principles

BEHAVIORAL AND SOCIAL SCIENCES CORE

Three of these (9 s.h.):

172:106 Designing and Implementing Interventions  
172:110 Community Development in Public Health  
172:130 Social Determinants of Health  
172:135 Health Disparities and Cultural Competence  
172:150 Health Behavior and Health Education  
172:185 Communicating with the Community  
172:240 Health Communication  
172:242 Persuasion and Health  
172:246 Health Communication Campaigns
RESEARCH METHODS CORE

Two of these (6 s.h.):

07P:243 Intermediate Statistical Methods 4 s.h.
07P:249 Factor Analysis and Structural Equation Models 3 s.h.
07P:252 Introduction to Multivariate Statistical Methods 3 s.h.
044:106 Foundations of GIS 3 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.
171:241 Applied Categorical Data Analysis 3 s.h.
172:181 Evaluation I: Theory and Applications 3 s.h.
172:183 Qualitative Research for Public Health 3 s.h.
172:202/113:202 Ethnographic Field Methods 3 s.h.
172:282 Evaluation II: Design and Methods 3 s.h.
172:285 Research Methods in Community and Behavioral Health 3 s.h.

CONTENT AREA ELECTIVES

Students work with their advisors to select at least 5 s.h. of course work appropriate to their educational goals and emphasis areas. They may choose from any community and behavioral health courses not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

THESIS

The thesis requirement is 6 s.h.

M.S. Subtrack in Health Communication

The M.S. subtrack in health communication is designed for students who wish to gain knowledge and skill in designing, evaluating, and implementing effective communication strategies and messages that use mediated and interpersonal channels to address the health needs of diverse audiences. The program focuses on clinician-patient interaction, family communication, group and organizational communication, and mass media and web-based campaigns.

The health communication subtrack combines the M.S. core course work with additional concentrated learning opportunities. Students fulfill the regular M.S. requirements, using the health communication core to satisfy the content area electives requirement.

HEALTH COMMUNICATION CORE

Four of these (12 s.h.):

036:371 Communication Theory 3 s.h.
172:140/019:160 Media and Health 3 s.h.
172:240/036:270 Health Communication 3 s.h.
172:242 Persuasion and Health 3 s.h.
172:246/036:379 Health Communication Campaigns 3 s.h.

M.P.H. Subtracks and Focus Areas

The Department of Community and Behavioral Health offers two subtracks (community and behavioral health, and health communication) and two focus areas (maternal, child, and family health; and nutrition and exercise) for the Master of Public Health. For detailed information about the M.P.H. degree, see Master of Public Health Program in the Catalog.

M.P.H. Subtrack in Community and Behavioral Health

The M.P.H. subtrack in community and behavioral health prepares public health practitioners for a variety of positions in community development, health program implementation, and health education.

M.P.H. Subtrack in Health Communication

The M.P.H. subtrack in health communication prepares public health practitioners for a variety of employment
opportunities in health communication strategies, health communication in groups and organizations, and mass media/web-based campaigns in health promotion.

**M.P.H. Focus Area in Maternal, Child, and Family Health**

The M.P.H. focus area in maternal, child, and family health prepares public health practitioners for employment in maternal, child, and family health positions that involve identifying problems, analyzing data, and developing solutions to maternal, child, and family health issues.

**M.P.H. Focus Area in Nutrition and Exercise**

The M.P.H. focus area in nutrition and exercise prepares public health practitioners for employment in community health promotion programs where nutrition and exercise research is applied. Students learn skills for working with clients to make behavioral changes such as altering diet and exercise patterns.

**Doctor of Philosophy**

The Doctor of Philosophy in community and behavioral health requires at least 75 s.h. of graduate credit, including credit from a master's degree. The program prepares individuals for academic, research, and policy-making work in the social and behavioral health sciences. This fast-growing academic specialty offers many career opportunities in academic and research institutions. The Ph.D. is offered with subtracks in addiction studies and health communication; see "Ph.D. Subtrack in Addiction Studies" and "Ph.D. Subtrack in Health Communication" below.

Ph.D. students must successfully complete a qualifying exam, a comprehensive exam, and a dissertation—a substantial scholarly treatise. The research topic must be approved by the student's dissertation committee.

During the first semester, students work with their academic advisors to develop a plan of study that satisfies their interests and professional goals as well as the program's requirements. Students are required to attend departmental seminars and to complete the following courses.

**COLLEGE OF PUBLIC HEALTH CORE**

All of these (9 s.h.):

171:161 Introduction to Biostatistics 3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.

**BEHAVIORAL AND SOCIAL SCIENCES CORE**

Seven of these (21 s.h.):

172:106 Designing and Implementing Interventions 3 s.h.
172:110 Community Development in Public Health 3 s.h.
172:130 Social Determinants of Health 3 s.h.
172:131/113:184 Anthropology and International Health 3 s.h.
172:135 Health Disparities and Cultural Competence 2-4 s.h.
172:150 Health Behavior and Health Education 3 s.h.
172:173/113:185 Medical Anthropology 3 s.h.
172:185 Communicating with the Community 3 s.h.
172:240 Health Communication 3 s.h.
172:242 Persuasion and Health 3 s.h.
172:246 Health Communication Campaigns 3 s.h.

**RESEARCH METHODS CORE**

Five of these (15 s.h.):

07P:243 Intermediate Statistical Methods 4 s.h.
07P:249 Factor Analysis and Structural Equation Models 3 s.h.
07P:252 Introduction to Multivariate Statistical Methods 3 s.h.
034:214 Introduction to Sociological Data Analysis 3 s.h.
034:215 Sampling, Measurement, and Observation Techniques 3 s.h.
034:216 Linear Models in Sociological Research 3 s.h.
034:218 Advanced Statistical Modeling of Data 3 s.h.
034:219 Structural Equation Modeling 3 s.h.
044:106 Foundations of GIS 3 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.
171:241 Applied Categorical Data Analysis 3 s.h.
172:181 Evaluation I: Theory and Applications 3 s.h.
172:183 Qualitative Research for Public Health 3 s.h.
172:202/113:202 Ethnographic Field Methods 3 s.h.
172:282 Evaluation II: Design and Methods 3 s.h.
172:285 Research Methods in Community and Behavioral Health 3 s.h.

CONTENT AREA ELECTIVES

Students work with their advisors to select at least 18 s.h. of course work appropriate to their educational goals and emphasis areas. They may choose from any Department of Community and Behavioral Health courses they have not already taken, other College of Public Health courses, or other University of Iowa graduate-level courses.

DISSERTATION

The dissertation requirement is 12 s.h.

Ph.D. Subtrack in Addiction Studies

The Ph.D. subtrack in addiction studies is designed for students who wish to gain skill in developing and evaluating addiction prevention and intervention programs. This area of study and practice examines addiction prevention and treatment from both a public health and a biopsychosocial perspective.

The addiction studies subtrack combines core course work from the Ph.D. curriculum with additional specialized training. Students fulfill the regular Ph.D. requirements, using the addiction studies core to satisfy the content area electives requirement.

ADDITION STUDIES CORE

Students work with their advisor to select 18 s.h. of addiction studies course work offered by the department. Courses focusing on treatment of substance abuse and comorbid psychopathology, prevention of substance abuse and comorbid psychopathology, and assessment and diagnosis of addiction and comorbid psychopathology are under development.

Ph.D. Subtrack in Health Communication

The Ph.D. subtrack in health communication is designed for students who wish to prepare for academic, research, and policy-making careers in the area of health communication.

The health communication subtrack combines the core course work from the Ph.D. curriculum with additional specialized training. Students fulfill the regular Ph.D. requirements, using the health communication core to satisfy the content area electives requirement.

HEALTH COMMUNICATION CORE

Four of these (12 s.h.):

036:371 Communication Theory 3 s.h.
172:140/019:160 Media and Health 3 s.h.
172:240/036:270 Health Communication 3 s.h.
172:242 Persuasion and Health 3 s.h.
172:246/036:379 Health Communication Campaigns 3 s.h.

Admission

The community and behavioral health faculty considers several factors when evaluating applications for admission, including scores on the Graduate Record Exam, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.
All applicants must submit academic transcripts, three letters of recommendation, and a statement of purpose. Forms are available from the Department of Community and Behavioral Health or on its web site (see “Prospective Students”).

Applicants to the M.S. program must have a cumulative grade-point average of at least 3.00 and should hold a bachelor's degree from an accredited college or university. No specific undergraduate major is required. Preference is given to applicants with Graduate Record Exam verbal scores of at least 520, quantitative scores of at least 600, and analytical writing scores of at least 4.0.

Applicants to the Ph.D. program must have a graduate grade-point average of at least 3.40 and should hold a graduate degree from an accredited college or university—ideally, an M.S. in community and behavioral health, or another public health degree, or a related social science degree, or a clinical health degree. Applicants who do not hold a graduate degree should apply to the M.S. program. Preference is given to applicants with Graduate Record Exam verbal scores of at least 520, quantitative scores of at least 620, and analytical writing scores of at least 4.0. Ph.D. program applicants also must submit their master's thesis, or if no thesis is available, a sample of their scholarly writing.

Applicants whose first language is not English and who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 550-599 (paper-based), 213-249 (computer-based), or 79-99 (Internet-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

**APPLICATION DEADLINES**

**Fall entry:** April 1

Applications received by January 20 receive maximum consideration for financial aid.

**Financial Support**

Several forms of financial support are available, including scholarships and awards, student loans, and graduate assistantships.

Graduate assistantships provide a stipend and entitle students to resident tuition and reduced health insurance costs. Research assistantships are competitive and are awarded according to department need and student merit.

Scholarships and fellowships are available through federal agencies, such as the Centers for Disease Control and the National Institutes of Health, and from private foundations.

**Resources**

The department houses the Center for Health Communication and Social Marketing, the Iowa Tobacco Research Center, the Prairielands Addiction Technology Transfer Center, and the Prevention Research Center.

The Center for Health Communication and Social Marketing promotes communication research to address today's public health challenges. The Iowa Tobacco Research Center supports research and education on tobacco use and prevention of tobacco use. It also supports culturally competent and accessible smoking cessation services. The Prairielands Addiction Technology Transfer Center provides state-of-the-art training, curricula, and resources on substance use issues for counselors, health care professionals, and members of the community. The Prevention Research Center focuses on improving the health of rural Iowans.

Graduate students may have opportunities to work with ongoing research projects in the centers.

**Community and Behavioral Health Courses**

172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
Basic concepts, strategies, and methods of health promotion and disease prevention; health promotion in the context of public health, theories and principles that underpin health promotion; overview of policy formation and health promotion planning, implementation, evaluation. Offered spring semesters. Prerequisite: graduate standing or consent of instructor.

172:106 Designing and Implementing Interventions 3 s.h.
Background and skills necessary to plan a public health intervention program; program planning models. Offered fall semesters. Prerequisites: 172:150, and admission to College of Public Health or consent of instructor.

172:110 Community Development in Public Health 3 s.h.
Concepts, strategies, and methods of community development as major approaches to creating healthy communities and promoting social change; role of public health practitioners as agents of change in organizations, communities. Offered fall semesters. Prerequisite: graduate standing or consent of instructor.

172:115 Community Preventive Programs and Services 3 s.h.
Current public health problems and associated community preventive interventions. Offered fall semesters.

172:122 Maternal, Child, and Family Health 3 s.h.
Major issues, policies, and programs for health of women, children, and families in the United States; social, political, and economic determinants. Offered spring semesters. Prerequisites: 096:030 and 173:140, or consent of instructor.

172:130 Social Determinants of Health 3 s.h.
Relationship between social factors and health, with focus on family, neighborhood, community, and social group levels. Offered spring semesters. Prerequisite: graduate standing or consent of instructor.

172:131 Anthropology and International Health 3 s.h.
Anthropological contributions to and critiques of the international health enterprise; case studies illustrating anthropology and international health's intersection, and their differences. Offered spring semesters. Same as 113:184, 152:184.

172:133 The Anthropology of Women's Health 3 s.h.
How female gender intersects with culture, environment, and political economy to shape health and illness; reproductive health, violence, drug use, cancer; readings in anthropology, public health. Prerequisite: 113:003 or 113:010 or 131:010 or consent of instructor. Same as 113:133, 131:133.

172:135 Health Disparities and Cultural Competence 2-4 s.h.
Characteristics, causes, and effects of health disparities in the U.S. health care system; foundation for development of knowledge, attitudes, and skills required of culturally competent health care providers; definitions and models of cultural competence, characteristics of culturally effective practitioners and workplaces; health disparities among specific populations, evidence for cultural competence as a remedy; taking a culturally appropriate history; working with interpreters; legal and professional imperatives for cultural competence. Same as 046:377, 096:125.

172:140 Media and Health 3 s.h.
Potential and limits of mass media's ability to educate the public about health; research and theory on the influence of information and entertainment media; theories, models, assumptions of mass communication in relation to public health issues. Same as 019:160.

172:150 Health Behavior and Health Education 3 s.h.
Common theories of health behavior and health education and their application to varied public health problems and settings. Offered spring semesters. Prerequisite: graduate standing or consent of instructor.

172:155 Public Health Issues in Overweight Management 3 s.h.
Overview of overweight and obesity from a public health perspective, including epidemiology, measurement issues, and intervention approaches at individual, community, and policy levels. Prerequisite: 170:101 or 172:101.

172:160 Substance Use and Misuse in America 3 s.h.
Current data on epidemiology, assessment and diagnosis, treatment, prevention of substance misuse. Prerequisites: an approved statistics course, grade of C- or higher in 031:013 or equivalent, and 031:010 or equivalent. Recommended: 031:163. Same as 031:173.

172:161 Substance Abuse Prevention and Intervention 3 s.h.
Prevalence and characteristics of several substance use disorders and the impact of such disorders on the individual, the community, and public health workers; how prevalence of substance use disorders varies among different ethnic and cultural groups, between men and women, across the life span, and through different socio-economic levels; how outcomes of substance abuse disorders vary at both the individual and community level as a function of these factors. Prerequisites: graduate standing and substance abuse course, or consent of instructor.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>172:162</td>
<td>Prevention and Early Intervention of Mental Health Disorders</td>
<td>3 s.h.</td>
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<td></td>
<td>Prevalence and characteristics of mental health disorders; differences</td>
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<td>between ethnicity and culture, gender, age, and socioeconomic background;</td>
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<td>primary and secondary prevention; assessment and tertiary treatment</td>
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<td>approaches to mental health disorders.</td>
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<td>172:163</td>
<td>Tobacco Use: Prevention and Control</td>
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<td>Tobacco use, particularly cigarette smoking, as a major public health</td>
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<td>concern; key factors contributing to tobacco use; strategies to reduce</td>
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<td>172:170</td>
<td>Special Topics</td>
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<td>Didactic material in community and behavioral health that may include</td>
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<td>tutorial, seminar, or faculty-directed independent work (e.g., literature</td>
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<td>search, project, short research project). Prerequisite: consent of</td>
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<td>172:173</td>
<td>Medical Anthropology</td>
<td>3 s.h.</td>
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<td>Major theoretical, methodological approaches; international health</td>
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<td>and development; biomedicine as a cultural system; ethnomedicine;</td>
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<td>anthropology and AIDS, human reproduction, epidemiology, ethnopsychiatry.</td>
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<td>Prerequisite: 113:003 or 113:010 or consent of instructor. Same as 113:185,</td>
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<td>152:185.</td>
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<td>172:181</td>
<td>Evaluation I: Theory and Applications</td>
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<td>Program evaluation methods in public health; overview of evaluation theory</td>
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<td>and models of program evaluation, examples of public health program</td>
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<td></td>
<td>evaluation, criteria for judging evaluation methods and products. Offered</td>
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<td></td>
<td>fall semesters. Prerequisites: 172:150, 173:140, and public health student</td>
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<td></td>
<td>standing or consent of instructor.</td>
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<td>172:183</td>
<td>Qualitative Research for Public Health</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Introduction to methods and theories of qualitative research that facilitate</td>
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<td></td>
<td>description and explanation of social phenomena related to health</td>
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<td></td>
<td>behavior, illness, prevention, and treatment in the public health domain.</td>
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<td>Offered fall semesters. Prerequisite: graduate standing or consent of</td>
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<td></td>
<td>instructor.</td>
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<td>172:185</td>
<td>Communicating with the Community</td>
<td>3 s.h.</td>
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<td></td>
<td>Communication skills for research and practice settings, taught from a</td>
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<td>cultural perspective with reference to gender, age, ethnicity; individual</td>
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<td>and constructive interviewing, public speaking, conducting focus groups.</td>
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<td>Offered fall semesters. Prerequisite: graduate standing or consent of</td>
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<td>instructor.</td>
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<td>172:202</td>
<td>Ethnographic Field Methods</td>
<td>3 s.h.</td>
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<td></td>
<td>Basic data-gathering techniques for field research in sociocultural</td>
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<td></td>
<td>anthropology. Prerequisite: anthropology graduate standing or consent of</td>
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<td></td>
<td>instructor. Same as 113:202.</td>
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<tr>
<td>172:240</td>
<td>Health Communication</td>
<td>3 s.h.</td>
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<td></td>
<td>Theories, concepts, research associated with health communication;</td>
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<td></td>
<td>interpersonal and mass communication approaches. Offered summer sessions.</td>
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<td></td>
<td>Same as 036:270.</td>
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<td>172:242</td>
<td>Persuasion and Health</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Theories of persuasion and social influence; attitude formation,</td>
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<td>relationship between attitudes and behavior, persuasion theories and their</td>
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<td></td>
<td>applications across health topics. Offered spring semesters. Prerequisite:</td>
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<td>graduate standing.</td>
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<td>172:246</td>
<td>Health Communication Campaigns</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Design and analysis of health campaigns; theory, practice, methods; mass</td>
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<td></td>
<td>media, community, organization, and interpersonal approaches. Offered</td>
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<td></td>
<td>spring semesters. Same as 036:379.</td>
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<tr>
<td>172:270</td>
<td>Independent Study in Community and Behavioral Health</td>
<td>arr.</td>
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<tr>
<td></td>
<td>Pursuit of an interest in community and behavioral health requiring</td>
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<td></td>
<td>substantial creativity and independence. Repeatable.</td>
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<td>172:272</td>
<td>Seminar: Medical Anthropology</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Recent developments and innovative theoretical advances in medical</td>
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<td></td>
<td>anthropology. Prerequisite: 113:185 or equivalent or consent of instructor.</td>
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<tr>
<td></td>
<td>Same as 113:272.</td>
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<tr>
<td>172:282</td>
<td>Evaluation II: Design and Methods</td>
<td>3 s.h.</td>
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Research design and methodology for evaluation of public health and related programs; causality, evaluation theory, threats to validity, selection and comparison of research designs, sample selection and size, survey and scale construction, quantitative and qualitative data collection and analysis, data management, reporting; based on case study of an infant mortality prevention program. Offered spring semesters. Prerequisites: 172:181 and a course in biostatistics or statistics.

172:285 Research Methods in Community and Behavioral Health 3 s.h.
Overview of quantitative research methods for community and behavioral health; major elements of behavioral and social science research, critical evaluation of research related to community and behavioral health, application of research methods in public health practice; opportunities for students to build skills for evaluation of research and application of quantitative research methods. Prerequisites: 171:161 and 173:140.

Epidemiology

Head: James C. Torner
Professors: Trudy Burns (Pediatrics/Genetics), Elizabeth Chrischilles (Pharmacy), Michael Cohen (Pathology/Urology), William Field (Occupational and Environmental Health), Laurence Fuortes (Occupational and Environmental Health/Internal Medicine), Greg Gray (International Programs), Loren Herwaldt (Internal Medicine), Michael Kirchhoff (Internal Medicine), Kathleen Janz (Health and Sport Studies), Susan Johnson (Obstetrics and Gynecology), Louis Levy (Preventive and Community Dentistry), Charles Lynch (Pathology), Larry Mahoney (Pediatrics), Jeffrey Murray (Pediatrics/Biological Sciences/Pathology), Corinne Peek-Asa (Occupational and Environmental Health/Nursing), Linda Snetselaar (Internal Medicine), Craig Zwerling (Occupational and Environmental Health/Internal Medicine)

Professors emeriti: Gary Doern (Pathology), Claibourne Dungy (Pediatrics), James Hanson (Pediatrics), Herman Hein (Pediatrics), Michael Pfaller (Pathology), Helmut Schrott (Internal Medicine), Robert Woolson (Biostatistics)

Adjunct professors: James C. Torner, Bradley Doebbeling, Susan Joseph, Paul Pomrehn (Community and Behavioral Health), M. Patricia Quinlisk, James Roth

Associate professors: Catherine Bradley (Obstetrics and Gynecology), John Brooks (Pharmacy/Health Management and Policy), Leslie Dennis, Peter Kaboli (Internal Medicine), David Katz (Internal Medicine), Jody Murph (Pediatrics), Michael Pentella, Jennifer Robinson, Paul Romitti, Wayne Sanderson (Occupational and Environmental Health)

Assistant professors: Gary Doern (Pathology), Claibourne Dungy (Pediatrics), James Hanson (Pediatrics), Herman Hein (Pediatrics), Michael Pfaller (Pathology), Helmut Schrott (Internal Medicine), Robert Woolson (Biostatistics)

Adjunct associate professors: Caroline Camey Doebbeling, Neal Kohatsu, Badrinath Koney (Urology), Annette O'Connor, Jose Sanchez, Mario Schootman (Anthropology), Carolyn Turvey (Psychiatry)

Assistant professors: Ryan Carnahan, Philip Polgreen (Internal Medicine), Tara Smith, Anne Wallis (Community and Behavioral Health)

Adjunct assistant professors: Patrick Blair, Radford Davis, Lucy DesJardin, Gary Heil, Valerie Hoffman, Jesse Hostetter, Maureen McCue (Anthropology), Christine Petersen, Shannon Putnam, Sheila Riggs (Preventive and Community Dentistry), Anne Tabor

Adjunct lecturers: Phyllis Stumbo

Adjunct instructor: Kirk Phillips

Graduate degrees: M.S., Ph.D. in Epidemiology; M.S. in Clinical Investigation

Web site: http://www.public-health.uiowa.edu/epi

The Department of Epidemiology focuses on surveillance for disease, risk factors for disease in the general population, behavioral factors in disease, use and outcome of health interventions and care, and the establishment and evaluation of disease control measures in the community. Students are guided by faculty members whose research interests include epidemiology of communication disorders, pharmacoepidemiology, cancer epidemiology, infectious disease epidemiology, adverse reproductive outcome epidemiology, anatomic pathology, genetics, cardiovascular disease, nutrition, smoking cessation, epidemiology of reproduction, dental epidemiology, clinical epidemiology, neuroepidemiology, meta-analysis, intervention trials, international health, and effects of aging.

Graduate Programs

The department offers a Master of Science and a Doctor of Philosophy in epidemiology, and a Master of Science in clinical investigation. It also offers the epidemiology subtrack for the Master of Public Health; see "M.P.H. Subtrack" below.

Master of Science in Epidemiology

The Master of Science in epidemiology requires 38 s.h. of graduate credit and is offered with or without thesis. The program prepares graduate students for professional careers in which specialized knowledge of epidemiological methods and analytic techniques are essential. Graduates find employment in local, state, and federal health agencies, academic institutions, and private enterprise.

Graduate students in epidemiology must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program. Students who choose to complete the degree without thesis are required to pass a comprehensive examination.

Students are required to attend departmental seminars and journal club, and to present one scientific poster at an international, national, regional, state, university, or department poster session. They also must complete the following courses.

**REQUIRED COURSES**

All of these:

171:161 Introduction to Biostatistics 3 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.
171:241 Applied Categorical Data Analysis 3 s.h.
173:140 Epidemiology I: Principles (web-based course cannot be used) 3 s.h.
173:160 Introduction to Epidemiology Data Analysis With Computers 2 s.h.
173:240 Epidemiology II: Advanced Methods 4 s.h.

One of these:

069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
069:270 Pathogenesis of Major Human Diseases 3 s.h.
One of these:

173:255 Epidemiology of Infectious Diseases 3 s.h.
173:260 Epidemiology of Chronic Diseases 3 s.h.

One of these:

172:150 Health Behavior and Health Education 3 s.h.
173:280 Introduction to Health Care Organization and Policy 3 s.h.
175:197 Environmental Health 3 s.h.

One of these:

173:195 Preceptorship in Epidemiology (for nonthesis students) 3 s.h.
173:300 Thesis/Dissertation (for thesis students, may be taken twice) 3 s.h.

ELECTIVES

Students must earn a minimum of 5 s.h. in electives, which must be selected from courses offered by the Department of Epidemiology (prefix 173).

Students also must earn at least 2 s.h. in course work pertinent to their educational goals and background. Students may choose an epidemiology course or another graduate course, with their advisor’s approval. The following courses are recommended.

171:164 Research Data Management 3 s.h.
171:174 Introductory Longitudinal Data Analysis 3 s.h.
171:242 Applied Survival and Cohort Data Analysis 3 s.h.

Master of Science in Clinical Investigation

The Master of Science in clinical investigation requires 30 s.h. of graduate credit. The program is designed for clinicians interested in pursuing careers in clinical research. It includes in-depth training in biostatistics, epidemiology, research ethics, and academic survival skills as well as didactic training applicable to clinical research careers.

Graduates of the program are able to critically evaluate clinical literature, write competitive grant proposals, design and conduct clinical research projects, work effectively with other researchers and support staff, and disseminate research results through manuscripts and presentations.

Applicants to the program must have completed at least 6 s.h. of pathology, physiology, and/or pharmacology. Students must remedy deficiencies by taking courses that fill this requirement during their enrollment in the program.

Graduate students in epidemiology must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

The M.S. in clinical investigation requires the following course work.

REQUIRED COURSES

Students earn a minimum of 15 s.h. as follows.

All of these:

173:150 Introduction to Clinical Epidemiology 2 s.h.
173:152 Clinical Research Career Development 1 s.h.
173:163 Seminar in Clinical and Translational Research (four semesters, 1 s.h. each) 4 s.h.
173:211 Grant Writing for Clinical Investigators 1 s.h.
173:295 Clinical Research Ethics 2 s.h.

One of these:

173:160 Introduction to Epidemiology Data Analysis With Computers 2 s.h.
173:161 Patient-Oriented Research Data Analysis 3 s.h.

One of these:
173:195 Preceptorship in Epidemiology 3-6 s.h.
173:300 Thesis/Dissertation 3-6 s.h.

Epidemiology Core

Students earn a minimum of 12 s.h. as follows.

Both of these:
171:241 Applied Categorical Data Analysis (or approved substitute) 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.

One of these:
171:161 Introduction to Biostatistics 3 s.h.
171:201 Biostatistical Methods I 4 s.h.

One of these:
171:162 Design and Analysis of Biomedical Studies 3 s.h.
171:202 Biostatistical Methods II 4 s.h.

Focus Area Electives

Students earn a minimum of 3 s.h. from one focus area.

General (Applicable to More Than One Focus Area)

06J:269 Meta-Analysis in Behavioral Social Sciences (Ph.D.) 3 s.h.
171:242 Applied Survival and Cohort Data Analysis 3 s.h.
171:266 Statistical Methods in Clinical Trials 3 s.h.
172:183 Qualitative Research for Public Health 3 s.h.
173:210 Writing a Research Protocol 3 s.h.
173:290 Intervention and Clinical Trials 3 s.h.
174:221 Evaluation and Outcomes in Health Care 2 s.h.

Patient-Oriented Research

031:270 Clinical Research Methods 3 s.h.
142:215 Transcription and Multifunctional Regulation by RNA 1 s.h.
173:236 Nutrition Intervention in Clinical Trials Research 2 s.h.

Epidemiology and Behavioral Research

031:263 Psychological Appraisal I 3 s.h.
044:131 Geography of Health 1-3 s.h.
111:204 Principles of Oral Epidemiology arr.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
172:150 Health Behavior and Health Education 3 s.h.
173:150 Introduction to Clinical Epidemiology 2 s.h.
173:225 Genetics and Epidemiology 4 s.h.
173:235 Nutritional Epidemiology 2 s.h.
173:240 Epidemiology II: Advanced Methods 4 s.h.
173:251 Injury Epidemiology 3 s.h.
M.P.H. Subtrack

The Department of Epidemiology offers the epidemiology subtrack for the Master of Public Health. The subtrack focuses on fundamental concepts and methods and provides training in the use of data and methods for disease assessment and for evaluation of programs and interventions. Graduates of the program work in public health departments and other health care settings. See Master of Public Health Program in the Catalog.

Doctor of Philosophy

The Doctor of Philosophy in epidemiology requires a minimum of 75 s.h. of graduate credit. The program prepares graduate students for careers as scientists, teachers, and practitioners of epidemiologic methods. Employment opportunities exist in academic institutions; local, state, and federal health agencies; and in commercial enterprises.

Graduate students in epidemiology must maintain a g.p.a. of at least 3.00. Those who receive a grade of C on 7 s.h. of course work may be dismissed from the program.

All doctoral students must successfully complete a qualifying examination, a comprehensive examination, and a dissertation—a substantial scholarly treatise. The research topic and content, which vary depending on the program of study, must be approved by the student's dissertation committee. Other degree requirements include approved electives chosen from Department of Epidemiology courses and other University of Iowa courses.

Students are required to attend departmental seminars and journal club, and to present one scientific poster at an international, national, regional, state, university, or department poster session. They also must complete the following courses.

**REQUIRED COURSES**

171:161 Introduction to Biostatistics  
171:162 Design and Analysis of Biomedical Studies  
171:164 Research Data Management  
171:241 Applied Categorical Data Analysis
Ph.D. students also must earn 3 s.h. in epidemiology courses outside their emphasis area.

ELECTIVES

Each student must declare an emphasis area and, working with the emphasis area coordinator, develop a plan of study that ensures the student will develop knowledge in a specific area sufficient to support important original research. At the discretion of the emphasis area coordinator and study plan committee, the student may organize emphasis area course work into required emphasis area courses and electives.

DISSERTATION

All doctoral students must successfully complete a Ph.D. thesis.


Admission

M.S. and Ph.D. in Epidemiology

The epidemiology faculty considers several factors when evaluating applications for admission, including GRE scores, grade-point average, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.S. program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00. Undergraduate preparation must include two semesters of biological sciences, and mathematics through algebra.

Ph.D. program applicants must hold a baccalaureate degree (an M.S. or M.P.H. usually is required), and must have a cumulative g.p.a. of at least 3.00. Courses in the biological, physical, and mathematical sciences provide important background; one semester of calculus and two semesters of biological sciences are highly recommended. Computing skills also are desirable.

All applicants to the M.S. or Ph.D. program must have taken the Graduate Record Examination (GRE) General Test.

Applicants whose first language is not English and who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 550-599 (paper-based), 213-249 (computer-based), or 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission. In place of TOEFL scores, the department accepts International English Testing System (IELTS) scores of 7.0 or higher, with no subscore below 6.0.

All M.S. and Ph.D. applicants and students are required to have strong written and oral communication skills.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Application deadlines for fall entrance to the M.S. in epidemiology are July 1 for U.S. citizens, April 15 for international applicants. Application deadlines for spring entrance are April 15 for U.S. citizens, March 1 for international applicants.
Application deadline for fall entrance to the Ph.D. in epidemiology is April 1. Application deadline for spring entrance (not encouraged) is October 1.

M.S. in Clinical Investigation

Applicants to the M.S. program in clinical investigation must hold a doctoral-level degree in a clinical discipline (e.g., M.D., D.O., D.D.S., Ph.D., Pharm.D., D.V.M) or be enrolled in the Medical Scientist Training Program (Carver College of Medicine). They must hold a baccalaureate degree with a cumulative g.p.a. of at least 3.00; foreign-trained applicants must have an outstanding doctoral training record.

All applicants must have taken the Graduate Record Examination (GRE), Medical College Admission Test (MCAT), or Dental Admission Test (DAT). Applicants whose first language is not English and who do not hold a degree from an accredited English-speaking college or university must have taken the Test of English as a Foreign Language (TOEFL).

Applicants are considered based on their credentials, prior training, and research training plans. An applicant with deficiencies in one area may be admitted if all other components of his or her application are strong.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

The M.S. in clinical investigation accepts students only for summer entrance. Application deadlines are April 15 for U.S. citizens, March 1 for international applicants.

Financial Support

A limited number of graduate research assistantships are available for advanced M.S. and Ph.D. students; for information, consult the department. For information on financing education through jobs, grants, and loans, contact the Office of Student Financial Aid.

Opportunities for funded predoctoral fellowships are available. Funded positions sponsored by federal agencies are available only to U.S. citizens.

Resources

Department of Epidemiology resources and activities include the State Health Registries of Iowa, the Preventive Intervention Center, the Lipid Research Clinic, the Health Effectiveness Research Center, the Center for Emerging Infectious Diseases, and the Nutrition Center.

The State Health Registries of Iowa, which encompasses the Iowa Cancer Registry and the Iowa Registry for Congenital and Inherited Disorders, works in cooperation with the Iowa Department of Public Health to collect medical data on Iowans. It is one of 10 registries nationwide that report data to the National Cancer Institute.

The Preventive Intervention Center conducts population-based intervention trials to prevent occurrence and recurrence of disease and to promote wellness, with a focus on the elderly. The Lipid Research Clinic specializes in research promoting prevention of cardiovascular disease and provides an interdisciplinary approach to risk factor interventions. The Health Effectiveness Research Center is a collaborative research enterprise with the College of Pharmacy that studies whether particular health care treatments or services are over- or underutilized. The Center for Emerging Infectious Diseases employs epidemiological methods, laboratory technologies, and clinical evaluations to achieve a better understanding of emerging infectious diseases. The Nutrition Center provides expertise in nutrition and dietary assessment, dietary interventions, and nutrition lifestyle change strategies.

Epidemiology Courses

173:099 Evidence-Based Public Health Methods
How to choose, conduct, and evaluate evidence-based programs and policies in public health; finding and using scientific evidence, implementing and evaluating interventions that produce new evidence. Offered summer sessions.
Prerequisite: Certificate in Public Health enrollment.

173:111 International Health
Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as 152:111, 175:111.

173:120 Principles of Public Health Informatics

Systematic applications of information science, computer science, and technology to public health practice, research, and learning; methods of disease surveillance, data collection, analysis, and reporting with health informatics.

173:130 Food Safety 3 s.h.
Current issues and concepts of food safety in the United States, from plant to table; foodborne illness from microbial agents, food toxins, adulterants; disease investigation, risk analysis, risk mitigation, prevention.

173:132 Exotic and Emerging Diseases of Animals 1 s.h.
Major exotic and emerging animal diseases; veterinarian's role in recognizing and diagnosing such diseases; how outbreaks affect economies and veterinary medicine; public health concerns; responding agencies and their roles in control and eradication.

173:140 Epidemiology I: Principles 3 s.h.
Epidemiological concepts and methods; design of descriptive and analytic studies, such as aggregate, case series, cross-sectional, case-control, cohort studies, clinical trials; application of epidemiology to public health practice; communication and dissemination of epidemiological findings.

173:145 Public Health Data 2 s.h.
Concepts and methods of obtaining and using public health data in community settings; how public health data are used for epidemiologic investigations and prevention programs. Offered spring semesters. Pre- or corequisites: 171:161 and 173:140.

173:147 Applied Veterinary Epidemiology/Biostatistics 3 s.h.
Epidemiology and biostatistics applied to veterinary public health; outbreak investigations, surveillance, analyzing and evaluating diagnostic tests, translation methodology, risk assessment, data analysis software programs. Prerequisites: 171:161 and 173:140.

173:150 Introduction to Clinical Epidemiology 2-3 s.h.
Epidemiologic applications and methods used in clinical settings to evaluate clinical medicine and other health profession disciplines, including health measurement, health outcome determination, diagnostic process, risk assessment and communication, prognosis, study design, patient surveys, clinical trials, decision analysis and meta-analysis, health services research. Offered fall semesters. Pre- or corequisites: 171:161 and 173:140.

173:152 Clinical Research Career Development 1 s.h.
Practical skills of clinical research; grant development and management, data management, communication of research findings, and academic career development. Offered summer sessions.

173:153 Surveillance Internship: IRCID 2 s.h.

173:154 Cancer Registration Internship 2 s.h.
Sources of data necessary for operation of a population-based cancer registry; potential uses of the data; methods and personnel required for collecting, editing, storing, reporting, and assuring quality of data. Prerequisite: 173:140.

173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
Introduction to microbiological culture, antigen detection, immunological and molecular amplification laboratory techniques for bacteria, viruses, parasites, fungi. Offered spring semesters. Prerequisite: 061:103 or 061:112 or 061:157 or 061:164.

173:156 Introduction to Molecular Epidemiology 3 s.h.
Introduction to basic techniques of molecular biology (DNA, RNA, protein techniques) and their use in epidemiological research (e.g., diagnosis of disease, biomarker discovery and validation). Pre- or corequisite: 173:140.

173:157 Zoonotic Diseases 2-3 s.h.
Introduction to the epidemiology and control of zoonotic diseases; zoonoses endemic to the midwestern United States. Offered summer sessions. Prerequisite: 061:103 or 061:112 or 061:157 or 061:164 or 173:155 or 173:255.

173:158 Public Health Laboratory Techniques 1 s.h.
Common laboratory techniques in emerging infectious respiratory disease research and epidemiologic surveillance laboratories; emphasis on techniques for culturing, characterization, and serological surveillance of exposure to influenza viruses. Prerequisite: completion of online Basic Biological Safety and Blood-borne Pathogens courses; completed certificates must be brought to class.

173:159 Applied Infectious Disease Epidemiology 2 s.h.
Introduction to infectious disease surveillance, diagnostic tools, outbreak investigations, vaccine trials, public health interventions, biodefense, emerging infectious diseases, and analytical approaches pertaining to infectious disease prevention and control; emphasis on respiratory viral diseases. Duplicates 173:255.

173:160 Introduction to Epidemiology Data Analysis With Computers 2 s.h.
Organization, collection, management, and analysis of epidemiological data using computer programs. Offered fall semesters. Pre- or corequisites: 171:161 and 173:140.

173:161 Patient-Oriented Research Data Analysis 3 s.h.

173:163 Seminar in Clinical and Translational Research 1 s.h.
Presentation of ongoing clinical research projects, grant applications, and methodological articles, with emphasis on works in progress.

173:170 Injury and Violence Prevention 3 s.h.
Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Same as 175:170.

173:175 Research Methods in Disaster Studies 3 s.h.
Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as 175:175.

173:190 Problems and Special Topics in Epidemiology arr.
Didactic material in epidemiology; may include tutorial, seminar, faculty-directed independent work (e.g. literature search, project, short research project).

173:195 Preceptorship in Epidemiology arr.
Quantitative research-oriented project performed with a preceptor; preparation of prospectus, presentation of research results in a publication-quality report and a scientific poster session.

173:199 Practicing Evidence-Based Public Health 3 s.h.
How epidemiologic and other scientific studies underlie public health practice; relationship between evidence and action; controversies at interface of science and policy. Offered spring semesters.

173:200 Independent Study in Epidemiology arr.
In-depth pursuit of an area of special interest in epidemiology requiring substantial creativity and independence. Repeatable.

173:205 Research in Epidemiology arr.
Research that may lead to a dissertation. Repeatable.

173:208 Conducting Literature Syntheses 1 s.h.
Opportunity to develop skills for conducting literature searches and writing literature summaries or reviews, for grant or thesis background sections. Prerequisites: 171:161 and 173:140. Recommended: 173:160 or Hardin Library Reference Works course.

173:209 Behavioral Epidemiology 3 s.h.
Behavioral epidemiology, including diet, exercise, smoking, social support; use of design and measurement concepts and problem-solving skills in research, including focus groups, cognitive interviewing, and pilot studies that use qualitative methods to design quantitative questions regarding behavior. Prerequisites: 171:161 and 173:140, or equivalents.

173:210 Writing a Research Protocol 3 s.h.
Small group projects to develop research protocols using epidemiological study designs; presentation and defense of proposals before faculty site visitors. Offered fall semesters. Prerequisites: 171:161, 173:140, and 173:240.

**173:211 Grant Writing for Clinical Investigators**
1 s.h.
Development of skills for writing effective, scientifically sound applications for external research grants; for students who have completed the literature review section for their topic. Prerequisites: 171:161 and 173:140.

**173:215 Writing for Medical Journals**
1 s.h.
Skill development in writing medical journal articles for publication. Prerequisite: consent of instructor.

**173:225 Genetics and Epidemiology**
4 s.h.
Basic human genetic and population genetics principles; methods of integrating genetic principles into epidemiological studies; analytical methods for case control and family data. Prerequisites: 171:161 and 173:140, or consent of instructor.

**173:230 Principles of Dietary Assessment**
1 s.h.
Overview of current dietary assessment methods; evaluation of dietary records, dietary recall, food frequency questionnaires, brief dietary scanners, nutrient database, nutrient intakes standards. Offered spring semesters. Prerequisite: 3 s.h. of college nutrition courses.

**173:233 Evidence-Based Nutrition Policy**
3 s.h.
Concepts and methods used in setting public health nutrition policy; evidence-based aspects of nutrition policy formation in public health settings; evaluation of nutritional public health policy implementation. Offered summer sessions.

**173:235 Nutritional Epidemiology**
2 s.h.
Application of epidemiology study designs to nutrition variables and chronic disease; analysis of nutrition epidemiology studies; research protocol design. Offered spring semesters. Recommended: a basic nutrition course.

**173:236 Nutrition Intervention in Clinical Trials Research**
2 s.h.
Nutrition interventions in clinical trials; disease related to nutrition variables; research that links effects of diet on chronic diseases. Offered fall semesters. Recommended: a basic nutrition course.

**173:237 Nutrition Intervention in Research Lab**
3 s.h.
Development, demonstration of group counseling skills in ongoing nutrition research projects at The University of Iowa. Offered fall semesters. Pre- or corequisite: 173:236 or consent of instructor.

**173:240 Epidemiology II: Advanced Methods**
4 s.h.
Epidemiologic study design and analysis; bias, confounding, effect modification; case-control studies; cohort studies; field methods; measurement principles; exposure and disease classification; acute and chronic disease examples. Offered spring semesters. Prerequisites: 171:161, 173:140, and 173:160.

**173:245 Epidemiology of Physical Activity**
3 s.h.
Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as 028:249.

**173:251 Injury Epidemiology**
3 s.h.
How epidemiology can be applied to injury prevention and control: epidemiology literature, specific methodological problems involved in the epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 173:140 or consent of instructor. Same as 175:251.

**173:253 Epidemiology of Occupational Injuries**
3 s.h.
Epidemiological literature on occupational injuries and their prevention; focus on research methods. Offered spring semesters of even years. Prerequisite: 173:140 or consent of instructor. Same as 175:253.

**173:255 Epidemiology of Infectious Diseases**
3 s.h.
Underlying epidemiological concepts of infection disease, including causation and surveillance; prevention and control; case studies. Offered fall semesters. Prerequisite: 173:140 or equivalent. Same as 152:257.

**173:256 Hospital Epidemiology**
2 s.h.
Health care-associated infections; surveillance, investigative methods, resistant organisms, molecular epidemiology; methods for preventing spread of pathogens, including isolation precautions; environmental issues, construction, sterilization; interactive exercises. Prerequisite: 173:140 or equivalent.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>173:257</td>
<td>Infectious Causes of Chronic Disease</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Evidence linking various infectious agents with</td>
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<td></td>
<td>the development of different types of chronic</td>
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<tr>
<td></td>
<td>disease. Offered even years. Pre- or corequisite:</td>
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<td>173:140.</td>
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<tr>
<td>173:260</td>
<td>Epidemiology of Chronic Diseases</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Chronic disease epidemiology; survey of leading</td>
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<td></td>
<td>chronic diseases, including measurement of</td>
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<td></td>
<td>disease, lifestyle, nutrition, occupation, family</td>
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<td></td>
<td>history. Offered spring semesters. Prerequisite:</td>
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<td></td>
<td>173:140 or consent of instructor.</td>
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<tr>
<td>173:261</td>
<td>Epidemiology of Aging</td>
<td>1-2 s.h.</td>
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<td></td>
<td>Epidemiologic methods for studying health and</td>
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<td></td>
<td>social problems of older persons; applications</td>
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<td></td>
<td>including research and public health practice</td>
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<td></td>
<td>and policy. Offered spring semesters. Prerequisite:</td>
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<td></td>
<td>173:140. Same as 153:261.</td>
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<tr>
<td>173:262</td>
<td>Neuroepidemiology</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Basic epidemiologic concepts of neurologic</td>
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<td></td>
<td>disease; concepts, methods, examples of</td>
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<td></td>
<td>neuroepidemiology; varied diseases, methods.</td>
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<tr>
<td></td>
<td>Prerequisites: 173:140 or equivalent, and 173:160</td>
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<tr>
<td>173:263</td>
<td>Epidemiology of Reproductive Diseases</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Evaluation of methodological issues and current</td>
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<td>findings for reproductive diseases and conditions</td>
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<td></td>
<td>etiologic mechanisms, including behavioral and</td>
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<td></td>
<td>genetic. Offered fall semesters. Prerequisite:</td>
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<td></td>
<td>173:140.</td>
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<tr>
<td>173:264</td>
<td>Epidemiology of Maternal and Infant Health</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Overview of maternal and infant epidemiologic</td>
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<td></td>
<td>and methodologic issues; prevalence and trends;</td>
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<td>risk factors; data sources, including limitations</td>
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<td>and availability; relevant measurement issues;</td>
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<td>directions for future research. Prerequisites:</td>
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<tr>
<td></td>
<td>171:161 and 173:140.</td>
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<tr>
<td>173:265</td>
<td>Cardiovascular Disease Epidemiology</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Natural history of atherosclerotic disease in</td>
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<td></td>
<td>humans and risk factors affecting its development</td>
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<td></td>
<td>by age, sex, and in varied populations worldwide;</td>
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<td>recent guidelines and clinical trials to delay</td>
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<td></td>
<td>onset, reduce incidence, improve outcome of</td>
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<td></td>
<td>cardiovascular disease. Offered fall semesters of</td>
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<td></td>
<td>odd years. Prerequisites: 171:161 and 173:140.</td>
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<tr>
<td>173:267</td>
<td>Psychiatric Epidemiology</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Population-based studies of psychiatric disorders</td>
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<td></td>
<td>and associated etiologic tools; diagnostic</td>
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<td></td>
<td>criteria used in psychiatric research, common</td>
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<td></td>
<td>structured interviews and rating scales; recent</td>
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<td></td>
<td>research relevant to common psychiatric disorders;</td>
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<td></td>
<td>experience writing a research idea using NIH PHS</td>
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<td></td>
<td>grant form. Offered spring semesters. Prerequisite:</td>
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<td></td>
<td>173:140 or consent of instructor. Recommended:</td>
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<tr>
<td></td>
<td>173:240 or two years of resident training in</td>
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<tr>
<td></td>
<td>psychiatry. Same as 073:255.</td>
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<tr>
<td>173:270</td>
<td>Cancer Epidemiology and Control</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Incidence, mortality, survival; risk factors,</td>
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<tr>
<td></td>
<td>cancer control options for major cancer sites;</td>
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<td></td>
<td>principles and methods of cancer registration;</td>
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<td>research examples by type of study design.</td>
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<td></td>
<td>Offered spring semesters of even years. Prerequisites:</td>
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<tr>
<td></td>
<td>171:161 and 173:140.</td>
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<td>173:272</td>
<td>Cancer Molecular Epidemiology Seminar</td>
<td>2 s.h.</td>
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<tr>
<td></td>
<td>Basic tumor biology and lab-based methods applied</td>
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<td>to development of translational approaches to</td>
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<td></td>
<td>prevention, early diagnosis, and treatment of</td>
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<td></td>
<td>human cancers. Prerequisite: consent of</td>
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<td></td>
<td>instructor. Same as 069:272.</td>
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<tr>
<td>173:276</td>
<td>Health Care Utilization Outcomes</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Research tools to assess changes in health care</td>
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<td>use and cost as outcomes of treatment; theories</td>
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<td></td>
<td>of health outcomes; analysis of hospital</td>
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<td>discharge data sets. Prerequisites: knowledge of</td>
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<td>SAS or SPSS, and consent of instructor. Same as</td>
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<td></td>
<td>174:268.</td>
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<tr>
<td>173:280</td>
<td>Introduction to Health Care Organization and</td>
<td>3 s.h.</td>
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<tr>
<td></td>
<td>Policy</td>
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<td></td>
<td>Organization of U.S. health care system, health</td>
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<td></td>
<td>policies that shape its development; historical,</td>
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<tr>
<td></td>
<td>socioeconomic, political, environmental forces</td>
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<td>that influence the organization, financing, and</td>
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<td></td>
<td>delivery of personal and public health services;</td>
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<td>health services, policy concepts, and</td>
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<td>terminology, including health determinants,</td>
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<td></td>
<td>access to care, system integration, policy</td>
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<tr>
<td></td>
<td>development, federalism. Same as 174:200.</td>
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</tr>
</tbody>
</table>
### 173:290 Intervention and Clinical Trials
3 s.h.
Methodologic introduction to rationale, design, conduct, analysis, and presentation of clinical trials; basics of clinical trial design, variety of designs, examples from clinical trials; biostatistical methods, including sample size determination. Offered fall semesters. Prerequisites: 171:161 and 173:140, or equivalents.

### 173:291 Pharmacoepidemiology
3 s.h.
Drug approval process, methods for identification and attribution of adverse drug events, current understanding of the epidemiology of adverse drug events; study designs, data sources for pharmacoepidemiology, pharmacoconomics. Offered fall semesters of even years. Prerequisite: 173:140.

### 173:295 Clinical Research Ethics
2 s.h.
Ethical and regulatory aspects of clinical research; historical background, current regulations, Institutional Review Board requirements related to human subjects protection issues. Prerequisite: K30 training grant or enrollment in degree program with clinical research project.

### 173:300 Thesis/Dissertation
arr.
Repeatable.

### 173:320 Teaching in Epidemiology
3 s.h.

### 173:340 Epidemiology III: Theories
3 s.h.
How epidemiology fits into the wider context of scientific inquiry. Offered fall semesters of odd years. Prerequisites: 171:241, 173:140, and 173:240.
Emerging Infectious Disease Epidemiology

Director: Greg Gray
Graduate nondegree program: Certificate in Emerging Infectious Disease Epidemiology

The College of Public Health offers the Certificate in Emerging Infectious Disease Epidemiology. The graduate-level program provides basic information and training related to infectious diseases. It has a required on-campus component (summer), but the remaining work may be done either on campus or by distance education.

Emerging infectious diseases increasingly are recognized as global and regional issues. Some infectious diseases are controlled effectively with the help of modern technology. But new diseases—such as SARS, West Nile, and avian influenza virus infections—appear frequently, and older ones, including malaria, tuberculosis, and bacterial pneumonia, are now appearing in forms that are resistant to drug treatments. All of them have the potential to seriously affect human and animal health as well as economies locally and worldwide. They pose novel and unceasing challenges for professionals in health care, government, and private agencies.

The certificate program is designed for a broad range of individuals, including graduate students, international public health professionals, laboratory professionals, physicians, nurses, veterinarians, and medical technologists who seek graduate-level training in emerging infectious diseases.

Certificate in Emerging Infectious Disease Epidemiology

The Certificate in Emerging Infectious Disease Epidemiology requires 12 s.h. of graduate credit. Students must maintain a g.p.a. of at least 2.75 in work toward the certificate and must complete the required courses within five years after beginning the program. Students who complete the certificate and are admitted subsequently to the Master of Public Health program may count a maximum of 9 s.h. of certificate work toward the M.P.H. requirements. Those working concurrently toward the certificate and the M.P.H. may apply a maximum of 3 s.h. of certificate work toward the M.P.H. requirements.

Three required certificate courses must be completed on campus during the two-week College of Public Health Summer Institute: 173:157 Zoonotic Diseases, 173:158 Public Health Laboratory Techniques, and 173:159 Applied Infectious Disease Epidemiology. The remaining courses may be completed on campus or by distance education.

The certificate requires the following courses.

All of these (6 s.h.):

- 173:157 Zoonotic Diseases 2-3 s.h.
- 173:158 Public Health Laboratory Techniques 1 s.h.
- 173:159 Applied Infectious Disease Epidemiology 2 s.h.

Two of these (6 s.h.):

- 171:161 Introduction to Biostatistics 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 173:155 Diagnostic Microbiology for Epidemiology 3 s.h.
- 175:197 Environmental Health 3 s.h.

Admission

Applicants should submit the certificate’s online application form, available on the Emerging Infectious Disease Epidemiology Program web site. They also must submit their official transcripts and a résumé. Applicants must hold a baccalaureate degree from an accredited college or university and must have a g.p.a. of at least 2.75 (or foreign equivalent).

Application deadlines for summer entry are November 30 of the year before entry for sponsored international applicants, and April 30 of the entry year for U.S. applicants.
Health Management and Policy

The Department of Health Management and Policy educates health care professionals to assume leadership roles in an increasingly complex and dynamic health care system. Graduates hold key executive, academic, research, government, and consulting positions in all areas of health management and policy, both in the United States and abroad.

Graduate Programs

The department offers the Master of Health Administration and a Doctor of Philosophy in health services and policy. It also offers joint degree programs with the Tippie College of Business (M.H.A./M.B.A.), the College of Law (M.H.A./J.D.), and the Graduate College's Urban and Regional Planning Program (M.H.A./M.A. or M.S.); see "Joint M.H.A. Degrees" below.

In addition, the department offers the policy subtrack for the Master of Public Health; see "M.P.H. Subtrack" below.

The department's degree programs rank among the foremost in the field. The M.H.A. is accredited by the Commission on Accreditation of Healthcare Management Education.

Master of Health Administration

The Master of Health Administration requires 60 s.h. of graduate credit, usually over two academic years of full-time study. The program prepares students for a wide variety of positions in health care management. It is designed to provide a comprehensive understanding of issues encountered by health care delivery organizations, and strong business skills.

Students work with their advisors to create a plan of study that incorporates required courses and elective course work to support their career goals in areas such as operations management, managed care, or financial management. They take core courses in management, economics, law, managerial finance, and financial accounting, and several courses that focus on health care applications. They also may take course work in other areas, such as business, urban and regional planning, and aging studies.

During the first year, students are introduced to the social, political, economic, and financial environments of health care organizations. The concepts, tools, and techniques of effective managerial decision making, planning, and control also are presented. During the second year, they pursue in-depth health care applications of management concepts and develop skills in areas relating to their special interests and career objectives.

Transfer credit and course waivers may be accepted, but all students are expected to complete a minimum of 54 s.h. during their course of study.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit hours</th>
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<tbody>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06N:225</td>
<td>Managerial Finance</td>
<td>3 s.h.</td>
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<tr>
<td>171:161</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>173:140</td>
<td>Epidemiology I: Principles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:100</td>
<td>Executive Seminar Series</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>174:200</td>
<td>Introduction to Health Care Organization and Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:201</td>
<td>Health Care Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:203</td>
<td>Strategic Planning and Marketing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:204</td>
<td>Quantitative Management in Health Care</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>174:205</td>
<td>Issues in Health Management and Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
174:208 Health Services Information Systems  2 s.h.
174:212 Health Economics I  3 s.h.
174:216 Financial Management of Health Institutions  3 s.h.
174:221 Evaluation and Outcomes in Health Care  2 s.h.
174:223 Seminar in Health Care Ethics  2 s.h.
174:224 Human Resources for Health Organizations  2 s.h.
174:225 Decision Modeling and Project Management  2 s.h.
174:237 Legal Aspects of Health and Medical Care  3 s.h.
174:243 Health Policy  1 s.h.

ELECTIVES

Students choose 14 s.h. of elective course work, which must include 8 s.h. in Department of Health Management and Policy courses.

Summer Internships, Fellowships, Residencies

The department facilitates placement of M.H.A. students in summer internships between the first and second years of study. Internships offer opportunities for practical experience outside the classroom, observing and interacting with executives in a health care setting. Internships are full-time positions that usually last 10-12 weeks and may carry up to 3 s.h. of credit. Students normally receive a salary or stipend, and in some cases, assistance with living arrangements.

Many M.H.A. students complement their academic training with a postgraduate fellowship or residency. Such experiences provide opportunities to observe, develop, and demonstrate practical management techniques and skills and to develop connections with colleagues. The department takes an active role in helping students identify and secure fellowship and residency positions.

Joint M.H.A. Degrees

The Department of Health Management and Policy offers joint degree programs with the Tippie College of Business, the College of Law, and the Graduate College. Students who wish to pursue an integrated program combining an M.H.A. with a master's or professional degree in another field should discuss their plans with both academic units and indicate their interest when they apply to the M.H.A. program.

Joint M.H.A./M.B.A.

Students interested in combining the traditional strengths of health management and policy with greater exposure to advanced management techniques may pursue the joint master's degree program with the Tippie College of Business.

This combination leads to a Master of Health Administration (M.H.A.) in health management and policy and a Master of Business Administration (M.B.A.). It requires 75 s.h. of graduate credit and normally is completed in two and a half to three years. Separate admission to each degree program is required. For information about the M.B.A., see Master of Business Administration Program in the Catalog.

Joint M.H.A./J.D.

The joint program with the College of Law is highly individualized, allowing students to gain in-depth exposure to and training in both health care management and law.

The program leads to an Master of Health Administration (M.H.A.) in health management and policy and the Juris Doctor (J.D.). It requires a minimum of 126 s.h. of postbaccalaureate credit and usually takes four years to complete. Separate admission to each degree program is required. Students register only for law courses during their first year. For information about the J.D., see Juris Doctor in the Catalog.

Joint M.H.A./M.A. or M.S. in Urban and Regional Planning

Students interested in developing special expertise in community and health planning may pursue a joint master's degree with the Graduate College's Urban and Regional Planning Program. The degree program in urban and regional planning prepares students to develop public policy alternatives that help improve the quality of life in cities and throughout regions.

The joint program leads to a Master of Health Administration (M.H.A.) in health management and policy and a Master of Arts or Master of Science in urban and regional planning. It requires 76 s.h. of graduate credit and can be completed in three years. Separate admission to each degree program is required. See Urban and Regional Planning in the Catalog.

M.P.H. Subtrack
The Department of Health Management and Policy offers the policy subtrack for the Master of Public Health. The subtrack prepares individuals for careers in health policy analysis, system and organizational planning, and program evaluation. Graduates find positions in federal, state, and local government as well as in professional associations and private agencies. See Master of Public Health Program in the Catalog.

**Doctor of Philosophy**

The Doctor of Philosophy in health services and policy requires a minimum of 77 s.h. of graduate credit, which may include up to 30 s.h. earned for a master's degree. The program, established in 1950, was the nation's first doctoral program in health care management. It prepares students for careers in health services research, education, and policy leadership in universities, government agencies, and health organizations.

The program is oriented toward applied, interdisciplinary research. Students develop mastery of theories and research methodologies necessary to study the complex American health system. Students work closely with faculty mentors on research projects and develop research design and methodology skills through course work and an apprenticeship model of training.

The program's faculty members are committed to interdisciplinary scholarly inquiry and research. Individual plans of study allow students to prepare for specific careers, and small class size encourages frequent student-faculty interaction, including participation in research projects as well as scholarly publications.

**REQUIRED COURSE WORK**

Ph.D. students take course work in core content areas covering health care systems, health economics, health outcomes, and health policy. Courses in research design and statistical analysis are required. Credit may be awarded for guided and independent research project work. Students may waive specific courses, depending on their background.

173:140 Epidemiology I: Principles 3 s.h.
171:161 Introduction to Biostatistics 3 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.
171:174 Introductory Longitudinal Data Analysis 3 s.h.
174:200 Introduction to Health Care Organization and Policy 3 s.h.
174:212 Health Economics I 3 s.h.
174:213 Health Economics II 3 s.h.
174:217 Health Insurance and Managed Care 3 s.h.
174:221 Evaluation and Outcomes in Health Care 2 s.h.
174:242 Federalism and Health Policy 3 s.h.
174:243 Health Policy 3 s.h.
174:245 Seminar in Health Policy 3 s.h.
174:252 Organizational Behavior and Theory in Health Care 3 s.h.
174:255 Seminar in Contemporary Health Issues (two semesters) 0 s.h.
174:257 Ph.D. Guided Research 3 s.h.
174:259 Design Issues in Health Service Research 3 s.h.
174:260 Ph.D. Independent Research 3 s.h.
174:261 Analytic Issues in Health Services Research I 3 s.h.
174:262 Analytic Issues in Health Services Research II 3 s.h.
174:268 Health Care Utilization Outcomes 3 s.h.
174:270 Seminar in Health Research and Instruction 3 s.h.
650:270 Principles of Scholarly Integrity 1 s.h.

**EXAMINATIONS**

All Ph.D. students must pass a preliminary examination that tests the student's mastery of core material covered during the first year in the department, including American health systems and health services research methods.

Students take the comprehensive examination at or near the end of their formal course work. The comprehensive exam focuses on the student's specific area of research and theoretical interest.

**DISSERTATION**

Doctoral candidates prepare dissertations based on original research that tests, extends, or applies concepts or
principles to a problem in health care. Students may choose to complete a traditional dissertation or may complete a dissertation based on three publishable papers.

**Admission**

Students from a variety of academic backgrounds are admitted to the department's graduate programs.

Applicants to the M.H.A. program should hold a bachelor's degree from an accredited college or university. No specific undergraduate major is required, but prospective applicants are strongly advised to complete introductory courses in accounting, economics, and statistics and to gain facility in using spreadsheet and presentation software. A cumulative g.p.a. of at least 3.00 is required. M.H.A. program applicants must submit scores on the Graduate Record Exam (GRE) General Test (a combined verbal and quantitative score of 1100 or above is preferred) or the Graduate Management Admission Test (a score of 600 or above is preferred); official MCAT, VAT, LSAT, or DAT scores are accepted in place of GRE or GMAT scores. Previous work experience in health care is desirable.

Applicants to the Ph.D. program should have a bachelor's or master's degree. Experience in health care and a master's degree in health administration, public health, or health planning are excellent preparation for the program. A graduate degree in social science, management, economics, or law is acceptable, depending on the applicant's background and career goals. A cumulative g.p.a. of at least 3.25 is usually required. All Ph.D. applicants must submit GRE scores (a combined verbal and quantitative score of 1100 or above is preferred).

All applicants must submit academic transcripts, three letters of recommendation, and a statement of objectives form (contact the Department of Health Management and Policy).

Applicants whose first language is not English and who do not hold a baccalaureate or more advanced degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 550-599 (paper-based), 213-249 (computer-based), or 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Students begin the program in fall semester. Campus visits are encouraged, and personal interviews are required before admission. The admissions committee conducts telephone interviews with applicants unable to interview on campus.

**Financial Support**

A variety of financial assistance is available, including scholarships and awards, student loans, and research assistantships. Every effort is made to provide financial support to students who demonstrate need and maintain satisfactory academic standards. Some awards are offered in recognition of outstanding scholarship and experience, regardless of need.

Research assistantships generally are awarded on the basis of student merit and the department's need. Assistantships afford valuable experience in health services research and management projects. Research assistants work 10-20 hours per week and must apply for reappointment each year. Research assistantships provide a stipend and some tuition assistance and entitle students to resident tuition.

Opportunities also exist for part-time employment both on and off campus. For information and financial aid application forms, contact the Office of Student Financial Aid.

**Resources**

The Center for Health Policy and Research is the research arm of the Department of Health Management and Policy and a University-wide interdisciplinary research facility. The center collaborates with health provider associations, policy and planning groups, insurance organizations, health delivery institutions, and other members of the health services research community. It also sponsors educational activities, including weekly seminars.

Department of Health Management and Policy faculty members are involved in a wide range of research topics and methodologies and have research grants and contracts of $7 million in the center. This large research portfolio provides excellent training opportunities for students.

**Alumni Relations**

An active alumni association supports the program in a number of ways, including scholarships, consultation on
curriculum, continuing education, research, and fund development. The association also functions as a network for graduates entering the profession. Alumni serve as visiting faculty, consultants, mentors, and preceptors for summer internships, residencies, and fellowships.

Graduates maintain their Iowa connection and learn about news of their classmates, the department, and faculty members and students through the Alumni Newsletter.

The Department of Health Management and Policy and its alumni association jointly sponsor the Annual Iowa Healthcare Executive Symposium each fall. Renowned speakers from across the country present a variety of symposium topics. Health care leaders, alumni, educators, students, and friends of the department attend the symposium, which offers students a high quality educational experience in addition to the opportunity to network with faculty and alumni.

**Health Management and Policy Courses**

174:100 Executive Seminar Series 0 s.h.
Issues in the health care industry; talks by executives from academic health centers, health-related associations, multihospital systems, government agencies, health maintenance organizations, community hospitals, health insurance industry. Prerequisite: consent of instructor.

174:102 Introduction to the U.S. Health Care System 3 s.h.
The U.S. health care system; socioeconomic, political, and environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy, concepts, terminology. Same as 06J:159.

174:140 Mental Health Services and Policy I 3 s.h.
Contemporary mental health services and policy; characteristics of mental health services, historical background, evolution, future prospects. Same as 096:100.

174:144 Medicare and Medicaid Policy 3 s.h.
Health policies most pertinent to Americans over age of 65. Same as 153:144.

174:200 Introduction to Health Care Organization and Policy 3 s.h.
Organization of U.S. health care system, health policies that shape its development; historical, socioeconomic, political, environmental forces that influence the organization, financing, and delivery of personal and public health services; health services, policy concepts, and terminology, including health determinants, access to care, system integration, policy development, federalism. Same as 173:280.

174:201 Health Care Management 3 s.h.
Application of basic management principles such as leadership, goal setting, decision making, human resource management, to health care organizations. Prerequisite: consent of instructor.

174:202 Hospital Organization and Management 2-3 s.h.
Role of hospitals, governance, organizational structure, medical staff organization, departmental operations. Prerequisites: 174:200 and 174:201, or consent of instructor.

174:203 Strategic Planning and Marketing 3 s.h.
Management, marketing. Prerequisite: 174:201.

174:204 Quantitative Management in Health Care 2-3 s.h.
Quantitative analysis techniques used by managers in health care settings to assist with planning, decision making, resource allocation. Prerequisite: consent of instructor.

174:205 Issues in Health Management and Policy 3 s.h.
Integration and application of theories, concepts, principles; case studies. Prerequisites: 174:201, 174:203, and consent of instructor.

174:206 Leadership in Healthcare Organizations 2-3 s.h.
Management and leadership concepts and their application in health care organizations. Prerequisite: 174:201.

174:207 Group Practice and Ambulatory Care Administration 3 s.h.
Delivery of ambulatory health care services, for-profit, and not-for-profit organizations; emphasis on structures, payment mechanism, compensation, effects of managed care, other internal issues. Prerequisites: 174:200, 174:201, and 174:202; or consent of instructor.

174:208 Health Services Information Systems
2-3 s.h.
Conceptual, practical aspects of analysis, development, and use of computer-based information systems; emphasis on application to the health sciences environment.

174:212 Health Economics I
3 s.h.
Microeconomic principles applied to health care, health insurance, information and uncertainty, models of physician and hospital behavior, theory of the firm, market structure, regulation, competitive reform, managed care. Prerequisite: consent of instructor.

174:213 Health Economics II
3 s.h.
Economic theory and its application to health behavior, markets for health care and health insurance, public policy related to health. Prerequisite: 174:212 or consent of instructor.

174:214 Financial Accounting for Health Care Organizations
3 s.h.
Introduction to financial accounting practices in health care delivery organizations.

174:216 Financial Management of Health Institutions
3 s.h.
Issues in working capital management, capital financing, cost analysis and rate setting, budgeting, reimbursement, managed care contracting and health reform initiatives; emphasis on use of information from accounting, financial management systems. Prerequisite: consent of instructor.

174:217 Health Insurance and Managed Care
3 s.h.
History and theory of insurance, comparative health systems, health systems and networks, HMOs, public health insurance, care for uninsured; emphasis on public policy. Prerequisites: 046:263 or 174:212 or equivalent health economics course, and 174:200 or equivalent U.S. health care system course; or consent of instructor. Same as 152:217.

174:218 Topics in Health Administration
1-3 s.h.
Topics related to contemporary problems that concern health care students, administrators. Repeatable.

174:221 Evaluation and Outcomes in Health Care
2 s.h.
Qualitative and quantitative methods for evaluating health care quality, effectiveness; program evaluation, health outcomes, clinical and cost effectiveness, evaluation across health care delivery systems. Prerequisite: 174:102 or 174:200 or consent of instructor.

174:223 Seminar in Health Care Ethics
2-3 s.h.
Biomedical and organization ethics in the contemporary health care environment; ethical concepts and principles, ethical issues that confront executive, clinical, and governance leaders in context of complex health organizations. Prerequisite: consent of instructor.

174:224 Human Resources for Health Organizations
2-3 s.h.
Overview of human resource management theories and practices for health care organizations; strategic human resource management, equal employment, staffing, training and development, appraisal, compensation. Prerequisite: 174:201 or consent of instructor.

174:225 Decision Modeling and Project Management
1-3 s.h.
Basic project management skills to ensure benefits from health care projects; quantitative decision modeling for a scientific approach to decision making. Prerequisite: consent of instructor.

174:226 Health Informatics I
3 s.h.
Technological tools that support health care administration, management, and decision making. Prerequisite: graduate standing or consent of instructor. Same as 021:275, 050:283, 051:187, 056:186, 074:191, 096:283, 200:110.

174:228 Cost Effectiveness and Decision Analysis
3 s.h.
Methods of cost-effectiveness analysis and decision analysis; applications to resource allocation decisions in public health and medicine.
174:229 Lean Sigma Principles: Applications in Health Care 1-3 s.h.
General lean and six sigma principles (1 s.h.); application to health care situations (3 s.h.); examples from University of Iowa Hospitals and Clinics, other institutions.

174:234 Administrative Internship arr.

174:235 Administrative Residency/Fellowship arr.

174:236 Administrative Practicum 3 s.h.
Experience with operational and planning matters in a health care setting. Prerequisites: second-year standing and g.p.a. of at least 3.00 for two consecutive semesters.

174:237 Legal Aspects of Health and Medical Care 3 s.h.
Statutory, common law frameworks applicable to health care system; court decisions that illustrate applications of general legal doctrines in hospital, health settings. Prerequisite: consent of instructor.

174:242 Federalism and Health Policy 3 s.h.
How American government's organization shapes development and implementation of health policy, programs, services.

174:243 Health Policy 1-3 s.h.
Policy process, policies and programs that shape provision of health care in the United States; health policies such as Medicare, Medicaid, Older Americans Act.

174:245 Seminar in Health Policy 3 s.h.
Contemporary health policy issues; theoretical and applied perspectives; social justice and health care for vulnerable populations (e.g., mental health, nursing homes); readings, discussion. Prerequisite: 174:243 or consent of instructor.

174:247 Nonprofit Organizational Effectiveness I 3 s.h.

174:248 Nonprofit Organizational Effectiveness II 3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 024:248, 028:258, 032:228, 042:248, 06J:248, 091:322.

174:252 Organizational Behavior and Theory in Health Care 3 s.h.
Key concepts of organizational behavior and organizational theory and their application to health care organizations and health services; perspectives from theoretical writings and empirical studies. Prerequisites: Ph.D. standing, knowledge of human services organizations, and consent of instructor.

174:253 History and Health Policy in the U.S. arr.
Books, articles, other readings on history of the medical and nursing professions, evolution of the hospital and other key sectors of the health economy; health policy issues and their implications.

174:254 Advanced Organizational Theory in Health Care 3 s.h.
Key concepts and their application to health care organizations and health services; perspectives from theoretical writings, empirical studies. Prerequisites: Ph.D. standing and consent of instructor.

174:255 Seminar in Contemporary Health Issues 0 s.h.
Review of relevant literature on methodological substantive issues in health care, presentations by researchers on health services and policy research. Prerequisite: consent of instructor.

174:257 Ph.D. Guided Research 1-3 s.h.
Experience with empirical research, guided by a faculty mentor; structured and supervised research activities. Prerequisite: consent of instructor.

174:259 Design Issues in Health Service Research
Design and causal inference reliability and validity in measurement; rules of evidence; research design for randomized-control trials, observational studies, meta-analysis.

174:260 Ph.D. Independent Research
Experience in empirical research through one or more substantive research experiences, with faculty mentor; authorship or coauthorship of at least one manuscript suitable for publication in peer review journal. Prerequisite: satisfactory completion of Ph.D. preliminary exams.

174:261 Analytic Issues in Health Services Research I
Analytic tools used in health services research; focus on applications in nonexperimental research settings, such as analyses using administrative claims data or preexisting public use data sets. Prerequisites: 171:162 and consent of instructor. Same as 046:261.

174:262 Analytic Issues in Health Services Research II
Continuation of 174:261; advanced applications, including panel data and qualitative response models. Prerequisite: 174:261. Same as 046:262.

174:266 Advanced Case Management: Interdisciplinary Approach
Theory, evidence, and strategies for health care coordination and integration examined through analysis of case management and disease management interventions; interdisciplinary approach; leadership for interdisciplinary teamwork; analysis and critique of case and disease management theory and models; synthesis of case and disease management principles as a framework for managing health care outcomes for cost and quality, identification of evidence-based clinical care guidelines; analysis of financial, legal, ethical, and outcomes management components of case and disease management practice. Same as 096:266.

174:268 Health Care Utilization Outcomes
Research tools to assess changes in health care use and cost as outcomes of treatment; theories of health outcomes; analysis of hospital discharge data sets. Prerequisites: knowledge of SAS or SPSS, and consent of instructor. Same as 173:276.

174:270 Seminar in Health Research and Instruction
Opportunity for Ph.D. students to develop research and teaching skills through presentations, readings, workshops. Prerequisite: satisfactory completion of Ph.D. preliminary exams.

174:280 Independent Study and Research
Supervised tutorial. Prerequisite: consent of instructor.

174:285 Ph.D. Dissertation
Research for preparation of dissertation; seminar presentation. Prerequisite: consent of instructor.
Master of Public Health Program

Director: Mary L. Aquilino
Graduate degree: M.P.H.
Web site: http://www.public-health.uiowa.edu/mph/

The Master of Public Health is recognized as the primary professional degree in public health. The objective of Iowa's M.P.H. program is to provide education and practical training in public health to students who will be leaders in their respective communities. The program is appropriate for individuals who already have professional experience and/or training in public health as well as for those whose expertise lies outside of public health.

The M.P.H. is awarded by the University of Iowa Graduate College. Combined degree programs for law, medical, nursing, and pharmacy students are available; see "Joint J.D./M.P.H.," "Joint M.D./M.P.H.," "Joint M.S.N./M.P.H.," and "Joint Pharm.D./M.P.H." in this section of the Catalog. The M.P.H. Program also offers two programs in collaboration with the College of Veterinary Science at Iowa State University; see "M.P.H. for Practicing Veterinarians" and "Joint D.V.M./M.P.H." in this section.

Master of Public Health

The Master of Public Health requires 42-59 s.h. of graduate credit, depending on the choice of specialization. The degree is offered with seven subtracks: biostatistics, community and behavioral health, epidemiology, ergonomics, health communication, occupational and environmental health, and policy. Students also may pursue a general M.P.H., for which they must define a focused area of study: aging studies; global health; maternal, child, and family health; or nutrition and exercise.

Degree requirements include a core course in public health practice and in each of the five core disciplines of public health (epidemiology, biostatistics, environmental health, health administration, and social and behavioral sciences); a bioscience course (or an additional elective course); a practicum; a set of content-specific required courses; and a set of content-specific electives. A final written report with oral presentation or a poster presentation related to the practicum constitutes the final examination.

All M.P.H. students complete the course work listed under "Common Requirements." In addition, each student completes the course work listed for his or her chosen subtrack.

Common Requirements

The following course work is required for all M.P.H. students. Students must earn a B-minus or higher on each core course. Students may repeat courses to achieve this standard.

CORE COURSES

All of these:

170:101 Introduction to Public Health 3 s.h.
171:161 Introduction to Biostatistics (biostatistics subtrack students must substitute 171:201 for 4 s.h.) 3 s.h.
172:101 Introduction to Health Promotion and Disease Prevention 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
175:197 Environmental Health 3 s.h.

One of these:

174:102 Introduction to the U.S. Health Care System 3 s.h.
174:200 Introduction to Health Care Organization and Policy 3 s.h.

BIOSCIENCE REQUIREMENT

All students, except those in the biostatistics, community and behavioral health, ergonomics, or policy subtracks, take one of the following. Students who already have completed equivalent course work may substitute an additional elective course for the bioscience requirement. Contact the Master of Public Health Program for current information about this requirement.

069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
069:270 Pathogenesis of Major Human Diseases 3 s.h.
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.
PRACTICUM

The practicum is a fieldwork experience in which students show proficiency in applying academic principles in community settings. There are many practicum opportunities for M.P.H. students in Iowa and surrounding states; the college’s Institute for Public Health Practice coordinates placements. The practicum is the culmination of the M.P.H. program.

Students must choose an approved topic and complete at least five of the six core courses before registering for and beginning the practicum. A final written report with an oral presentation or a poster presentation is required. The practicum constitutes the final examination for the M.P.H.

170:299 M.P.H. Practicum Experience 3 s.h.

Biostatistics Subtrack

The Master of Public Health with biostatistics subtrack requires 44 s.h. of graduate credit. The subtrack is offered by the Department of Biostatistics (College of Public Health).

The subtrack focuses on application of biostatistical methods to public health and biomedical sciences, and applications of methodology for design and analysis of research investigations in the health sciences. It also provides fundamental training in the public health sciences, core biostatistical theory, and core biostatistical methods vital for health science investigations. Graduates of the program are prepared for work as statistical consultants and data analysts for public health projects.

Applicants to the biostatistics subtrack should have a bachelor’s degree or equivalent in the biological, mathematical, or physical sciences. Applicants should have mathematics training in methods and techniques of single variable and multivariable differential and integral calculus, and in linear algebra. They also should be competent in at least one computer language, preferably FORTRAN, Pascal, or C.

Applicants with deficiencies in any of these areas may apply for admission and make up the deficiencies during the first year of graduate study. The following University of Iowa courses provide training at the required level.

22M:025 Calculus I 4 s.h.
22M:026 Calculus II 4 s.h.
22M:027 Introduction to Linear Algebra 4 s.h.
22M:028 Calculus III 4 s.h.

In addition to the M.P.H. course work listed under "Common Requirements" above, the biostatistics subtrack requires the following courses.

REQUIRED COURSES

All of these (13 s.h.):

171:202 Biostatistical Methods II 4 s.h.
171:241 Applied Categorical Data Analysis 3 s.h.

One of these (3 s.h.):

171:173 Design of Sample Surveys 3 s.h.
171:242 Applied Survival and Cohort Data Analysis 3 s.h.

ELECTIVES

Students earn 6 s.h. in elective courses chosen from the following (or 9 s.h. if they substitute an elective for the bioscience requirement).

22S:138 Bayesian Statistics 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:255 Linear Models 4 s.h.
171:164 Research Data Management 3 s.h.
Community and Behavioral Health Subtrack

The Master of Public Health with community and behavioral health subtrack requires 42 s.h. of graduate credit. The subtrack is offered by the Department of Community and Behavioral Health (College of Public Health).

The subtrack prepares public health practitioners for a variety of positions related to community development, health program implementation, and health education. Students learn how to design, implement, and evaluate evidence-based interventions directed toward identified public health problems in populations.

A bachelor's degree in the social and behavioral sciences is good preparation for this program, but students come from a variety of educational backgrounds. Preference is given to applicants who have professional experience or clinical background.

In addition to the M.P.H. course work listed under "Common Requirements" above, the community and behavioral health subtrack requires the following courses.

**REQUIRED COURSES**

At least 12 s.h. from these:

- 172:106 Designing and Implementing Interventions 3 s.h.
- 172:130 Social Determinants of Health 3 s.h.
- 172:150 Health Behavior and Health Education 3 s.h.
- 172:181 Evaluation I: Theory and Applications 3 s.h.
- 172:183 Qualitative Research for Public Health 3 s.h.
- 172:185 Communicating with the Community 3 s.h.
- 172:240 Health Communication 3 s.h.

**ELECTIVES**

At least 9 s.h. from these:

- 044:106 Foundations of GIS 3 s.h.
- 172:110 Community Development in Public Health 3 s.h.
- 172:115 Community Preventive Programs and Services 3 s.h.
- 172:122 Maternal, Child, and Family Health 3 s.h.
- 172:131 Anthropology and International Health 3 s.h.
- 172:133 The Anthropology of Women's Health 3 s.h.
- 172:160 Substance Use and Misuse in America 3 s.h.
- 172:161 Substance Abuse Prevention and Intervention 3 s.h.
- 172:163 Tobacco Use: Prevention and Control 3 s.h.
- 172:170 Special Topics arr.
- 172:202/113:202 Ethnographic Field Methods 3 s.h.
- 172:242 Persuasion and Health 3 s.h.
- 172:246 Health Communication Campaigns 3 s.h.
- 172:270 Independent Study in Community and Behavioral Health arr.
- 172:282 Evaluation II: Design and Methods 3 s.h.
- 172:285 Research Methods in Community and Behavioral Health 3 s.h.

Epidemiology Subtrack

The Master of Public Health with epidemiology subtrack requires 42 s.h. of graduate credit. The subtrack is offered by the Department of Epidemiology (College of Public Health).

The subtrack focuses on fundamental epidemiological concepts and methods and provides training in the use of public health data and methods for disease assessment and in methods for evaluating the need and outcome of programs.
and interventions. Graduates of the program work in public health departments and other health care settings.

In addition to the M.P.H. course work listed under "Common Requirements" above, the epidemiology subtrack requires the following courses.

**REQUIRED COURSES**

Total of 14-15 s.h.

All of these:

- 171:162 Design and Analysis of Biomedical Studies 3 s.h.
- 173:158 Public Health Laboratory Techniques 1 s.h.
- 173:160 Introduction to Epidemiology Data Analysis With Computers 2 s.h.
- 173:240 Epidemiology II: Advanced Methods 4 s.h.

One of these:

- 173:145 Public Health Data 2 s.h.
- 173:199 Practicing Evidence-Based Public Health 3 s.h.

One of these:

- 173:153 Surveillance Internship: IRCID 2 s.h.
- 173:154 Cancer Registration Internship 2 s.h.

Epidemiology subtrack students are required to attend departmental seminars and journal club. They also must present one scientific poster at an international, national, regional, state, university, or departmental poster session.

**ELECTIVES**

Students earn at least 2 s.h. in elective courses (or 5 s.h. if an elective is substituted for the bioscience requirement). At least 3 s.h. of elective credit must be earned in courses offered by the Department of Epidemiology (prefix 173) or in one of the following biostatistics courses.

- 171:241 Applied Categorical Data Analysis 3 s.h.
- 171:242 Applied Survival and Cohort Data Analysis 3 s.h.

**Ergonomics Subtrack**

The Master of Public Health with ergonomics subtrack requires 42 s.h. of graduate credit. The subtrack is offered by the Department of Occupational and Environmental Health (College of Public Health).

The subtrack takes advantage of interdisciplinary faculty strengths in the Colleges of Public Health and Engineering and the Carver College of Medicine. Ergonomics students gain a thorough understanding of workplace physical environments that contribute to musculoskeletal injuries and illness. They also acquire knowledge of engineering and administrative methods to control workplace risk factors. The program prepares students for work in industry and government agencies, as well as for further academic training.

In addition to the M.P.H. course work listed under "Common Requirements" above, the ergonomics subtrack requires the following courses.

**REQUIRED COURSES**

All of these (16 s.h.):

- 050:270 Responsible Conduct in Research 0 s.h.
- 056:144 Human Factors 3 s.h.
- 056:147 Ergonomics 3 s.h.
- 175:180 Occupational and Environmental Health Seminar 1 s.h.
- 175:190 Occupational Ergonomics I 3 s.h.
- 175:230 Occupational Health 3 s.h.
- 175:295 Clinical Ergonomics 3 s.h.
ELECTIVES

Ergonomics subtrack students earn 5 s.h. in elective courses. Electives may be chosen from the following list or may include a related course approved by the student's advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>175:192</td>
<td>Occupational Safety</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:231</td>
<td>Industrial Hygiene Fundamentals</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:251</td>
<td>Injury Epidemiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:253</td>
<td>Epidemiology of Occupational Injuries</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Health Communication Subtrack

The Master of Public Health with health communication subtrack requires 42 s.h. of graduate credit. The subtrack is offered by the Department of Community and Behavioral Health (College of Public Health).

The subtrack provides opportunities for students to develop knowledge and skill in designing, evaluating, and implementing effective communication strategies and messages that speak to the health needs of diverse audiences. The program addresses clinician-patient interaction, family communication, group and organizational communication, and mass media and web-based campaigns. The M.P.H. may be of interest to clinicians, such as physicians, nurses, pharmacists, and dentists, as well as other professionals who do not wish to earn a Ph.D.

In addition to the M.P.H. course work listed under "Common Requirements" above, the health communications subtrack requires the following courses.

HEALTH COMMUNICATION CORE

Four of these (12 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>036:371</td>
<td>Communication Theory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:140/019:160</td>
<td>Media and Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:185</td>
<td>Communicating with the Community</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:240/036:270</td>
<td>Health Communication</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:242</td>
<td>Persuasion and Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:246/036:379</td>
<td>Health Communication Campaigns</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

COMMUNITY AND BEHAVIORAL HEALTH CORE

Three of these (9 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>044:106</td>
<td>Foundations of GIS</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:106</td>
<td>Designing and Implementing Interventions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:130</td>
<td>Social Determinants of Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:150</td>
<td>Health Behavior and Health Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:181</td>
<td>Evaluation I: Theory and Applications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:183</td>
<td>Qualitative Research for Public Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:202/113:202</td>
<td>Ethnographic Field Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Occupational and Environmental Health Subtrack

The Master of Public Health with occupational and environmental health subtrack requires 42 s.h. of graduate credit. The subtrack is offered by the Department of Occupational and Environmental Health (College of Public Health).

The subtrack provides students with a broad perspective on public health and career preparation for a variety of professional positions in occupational and environmental health. Public health experience provides desirable background for this subtrack.

In addition to the M.P.H. course work listed under "Common Requirements" above, the occupational and environmental health subtrack requires the following courses.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>050:270</td>
<td>Responsible Conduct in Research</td>
<td>0 s.h.</td>
</tr>
</tbody>
</table>
Policy Subtrack

The Master of Public Health with policy subtrack requires 59 s.h. of graduate credit. The subtrack is offered by the Department of Health Management and Policy (College of Public Health).

The subtrack offers course work and applied learning experiences that prepare students for careers in health policy analysis, system and organizational planning, and program evaluation. Graduates of the program find positions in federal, state, and local government; professional associations; and private agencies. Varied academic backgrounds are appropriate preparation for this program, including business, liberal arts and sciences, and the health professions.

In addition to the M.P.H. course work listed under "Common Requirements" above, the policy and administration subtrack requires the following courses.

REQUIRED COURSES

All of these (32 s.h.):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>06N:215</td>
<td>Corporate Financial Reporting</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>172:181</td>
<td>Evaluation I: Theory and Applications</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:144</td>
<td>Medicare and Medicaid Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:201</td>
<td>Health Care Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:212</td>
<td>Health Economics I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:217</td>
<td>Health Insurance and Managed Care</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:223</td>
<td>Seminar in Health Care Ethics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>174:237</td>
<td>Legal Aspects of Health and Medical Care</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:242</td>
<td>Federalism and Health Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:243</td>
<td>Health Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:245</td>
<td>Seminar in Health Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

ELECTIVES

At least 6 s.h. from these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>030:210</td>
<td>American Politics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>091:261</td>
<td>Health Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:221</td>
<td>Poverty, Planning, and Public Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>174:140</td>
<td>Mental Health Services and Policy I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:252</td>
<td>Environmental Health Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

M.P.H. for Practicing Veterinarians

The University of Iowa College of Public Health, in collaboration with the College of Veterinary Medicine at Iowa State University, offers a distance-based Master of Public Health for practicing veterinarians. The degree requires a minimum of 42 s.h. of graduate credit. The program enables students to prepare for new career opportunities and equips them to respond to public health challenges such as zoonotic diseases, food security and foodborne illnesses, bioterrorism, and environmental health.

Students participate in two summer institutes, one on each campus during consecutive summers (two weeks in May and June); the rest of the program is Internet-based, so students may complete requirements at times that fit their schedules. Specific courses are required each semester of the program.

In addition to study at the summer institutes, the M.P.H. for practicing veterinarians requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" for the Master of Public Health; see the beginning of this Catalog section.

ADDITIONAL REQUIRED COURSES
Joint D.V.M./M.P.H.

The University of Iowa College of Public Health and the College of Veterinary Medicine at Iowa State University (ISU) offer the joint Doctor of Veterinary Medicine/Master of Public Health. The joint D.V.M./M.P.H. requires a minimum of 42 s.h. in addition to the requirements of the D.V.M. degree; see Doctor of Veterinary Medicine in the Iowa State University catalog. Students who complete the program are granted both degrees. The program prepares students for work as state veterinarians, as college and university faculty members, in local and state departments of public health, in the Public Health Commissions Corp., in state agricultural departments, and for public health positions in the military.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. For M.P.H. admission requirements, see "Admission" later in this section.

The joint D.V.M./M.P.H. requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" for the Master of Public Health; see the beginning of this Catalog section.

M.P.H. ELECTIVES

Students must earn at least 9 s.h. from the following courses.

173:111/175:111 International Health 3 s.h.
173:150 Introduction to Clinical Epidemiology 2 s.h.
173:155 Diagnostic Microbiology for Epidemiology (offered by distance education) 3 s.h.
173:157 Zoonotic Diseases (one-week course) 2 s.h.
173:225 Genetics and Epidemiology 4 s.h.
173:240 Epidemiology II: Advanced Methods 4 s.h.
173:251/175:251 Injury Epidemiology (offered by distance education) 3 s.h.
173:253/175:253 Epidemiology of Occupational Injuries 3 s.h.
173:255 Epidemiology of Infectious Diseases (offered by distance education) 3 s.h.
173:263 Epidemiology of Reproductive Diseases 2 s.h.
175:170 Injury and Violence Prevention (offered by distance education) 3 s.h.
175:175 Research Methods in Disaster Studies (offered by distance education) 3 s.h.
175:196 Agricultural Safety: Theories and Practice (offered by distance education) 2 s.h.
175:209 Rural Health and Agricultural Medicine (offered by distance education) 3 s.h.
175:210 Current Topics in Agricultural Health (offered by distance education) 0-1 s.h.
175:260 Environmental Toxicology 3 s.h.

REQUIRED D.V.M. COURSES

All of these (ISU courses):

Principles of Public Health (VMPM 388) 3 s.h.
Infectious Diseases and Preventive Medicine (VMPM 436) 2 s.h.
Infectious Diseases and Preventive Medicine (VMPM 437) 3 s.h.
Pharmacology and Therapeutics (VPP 443) 3 s.h.
Laboratories in Public Health (VMPM 486) 1 s.h.
Joint J.D./M.P.H.

The College of Law and the College of Public Health offer the joint Juris Doctor/Master of Public Health. The joint J.D./M.P.H. requires a minimum of 42 s.h. of graduate credit in addition to the requirements of the J.D. degree. Students who complete the program are granted both degrees.

The J.D./M.P.H. program helps students develop special expertise in public health legal issues. It is designed to train qualified students for leadership roles in both the public and private sectors.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Contact the College of Law and the College of Public Health for details. For detailed information about the J.D., see Juris Doctor (College of Law) in the Catalog.

The joint J.D./M.P.H. requires the following course work.

**M.P.H. COMMON REQUIREMENTS**

Students must complete courses listed under "Common Requirements" for the Master of Public Health; see the beginning of this Catalog section.

**M.P.H. ELECTIVES**

Students earn 9 s.h. in elective courses chosen from one of the following public health areas: aging studies; biostatistics; community and behavioral health; epidemiology; global health; health policy; maternal, child, and family health; nutrition and exercise; occupational and environmental health; or public health genetics. Students choose electives in consultation with their advisors in the College of Law and the College of Public Health.

**COURSES THAT COUNT TOWARD BOTH DEGREES**

Students may count up to 12 s.h. earned in any of the following College of Law courses toward the M.P.H.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>091:204</td>
<td>Administrative Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:245</td>
<td>Domestic Abuse Law</td>
<td>arr.</td>
</tr>
<tr>
<td>091:250</td>
<td>Employment Law</td>
<td>2, 3 s.h.</td>
</tr>
<tr>
<td>091:251</td>
<td>Topics in Employee Benefits Law</td>
<td>arr.</td>
</tr>
<tr>
<td>091:255</td>
<td>Environmental Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:261</td>
<td>Health Law</td>
<td>2, 3 s.h.</td>
</tr>
<tr>
<td>091:262</td>
<td>Federal Regulations of Health Care Industry: Fraud and Abuse</td>
<td>2, 3 s.h.</td>
</tr>
<tr>
<td>091:268</td>
<td>Family Law</td>
<td>3, 4 s.h.</td>
</tr>
<tr>
<td>091:284</td>
<td>Insurance</td>
<td>1, 2, 3 s.h.</td>
</tr>
<tr>
<td>091:291</td>
<td>International Environmental Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:292</td>
<td>Labor Law</td>
<td>3, 4 s.h.</td>
</tr>
<tr>
<td>091:320</td>
<td>Nonprofit Organizational Effectiveness I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:322</td>
<td>Nonprofit Organizational Effectiveness II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:341</td>
<td>Managing National Security</td>
<td>1, 2, 3 s.h.</td>
</tr>
<tr>
<td>091:342</td>
<td>Negotiations</td>
<td>2, 3, 4 s.h.</td>
</tr>
<tr>
<td>091:354</td>
<td>State and Local Government</td>
<td>1, 2, 3 s.h.</td>
</tr>
<tr>
<td>091:409</td>
<td>Child and Family Advocacy Clinic</td>
<td>arr.</td>
</tr>
<tr>
<td>091:455</td>
<td>Health Law and Policy Practicum</td>
<td>1, 2, 3 s.h.</td>
</tr>
</tbody>
</table>

**J.D. REQUIREMENTS**

Joint J.D./M.P.H. students must complete the professional curriculum of the J.D. program; see Juris Doctor (College of Law) in the Catalog. Students must be enrolled in the College of Law to take College of Law courses.

Joint M.D./M.P.H.

The Carver College of Medicine and the College of Public Health offer the joint Doctor of Medicine/Master of Public Health. The joint M.D./M.P.H. requires a minimum of 42 s.h. of graduate credit in addition to the requirements of the M.D. degree. Students who complete the program are granted both degrees. They enjoy expanded career opportunities and are well prepared to apply the principles of medicine and public health in their work.
Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint program.

Contact the Carver College of Medicine and the College of Public Health for details. For detailed information about the M.D. program, see Doctor of Medicine (College of Medicine) in the Catalog.

The joint M.D./M.P.H. requires the following course work.

**M.P.H. COMMON REQUIREMENTS**

Students must complete courses listed under "Common Requirements" for the Master of Public Health; see the beginning of this Catalog section.

**M.P.H. ELECTIVES**

Students earn 9 s.h. in elective courses chosen from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, health communication, health policy, occupational and environmental health, or an approved M.P.H. focus area (e.g., aging studies; global health; maternal, child, and family health; nutrition and exercise). Students choose electives in consultation with their advisors in the Carver College of Medicine and the College of Public Health.

**COURSES THAT COUNT TOWARD BOTH DEGREES**

Students may count up to 12 s.h. earned in the following courses, which are required for the M.D. degree, toward the M.P.H.

- 050:180 Community-Based Primary Care (up to 10 s.h.) arr.
- 050:183 Healthcare Ethics, Law, and Policy 2 s.h.
- 078:101 Inpatient Internal Medicine arr.
- 078:102 Outpatient Internal Medicine 3, 4 s.h.

**Joint M.S.N./M.P.H.**

The College of Nursing and the College of Public Health offer the joint Master of Science in Nursing/Master of Public Health. The joint M.S.N./M.P.H. requires a minimum of 60 s.h. of graduate credit. Students who complete the program are granted both degrees. The program prepares students for positions such as director of a public or community health agency, director of occupational health for a company or corporation, case manager for specific populations, information systems specialist for a public health agency or organization, or advanced nurse practitioner in a school, occupational, or public health organization.

Separate application to each degree program is required; applicants must be admitted to both programs before they can be admitted to the joint degree program. Each college's admission committee reviews each candidate independently.

Applicants must hold a baccalaureate degree in nursing from an accredited program and have an undergraduate g.p.a. of at least 3.00 and satisfactory Graduate Record Exam (GRE) General Test scores. They must submit a formal application, complete transcripts from each undergraduate and graduate school they have attended, and three professional recommendations (University of Iowa recommendation forms are required).

Contact the College of Nursing and the College of Public Health for details.

In addition to M.P.H. common requirements and M.S.N core courses, students complete 9-12 s.h. in a nursing focus and 3 s.h. in an M.P.H. capstone project. A master's project or nursing portfolio is required. The remaining credit is earned in elective courses. Areas of emphasis are informatics, nursing administration, community health, and occupational health/ergonomics.

For availability of nursing courses, contact the College of Nursing or see "Courses" in the College of Nursing section of the Catalog.

**M.P.H. COMMON REQUIREMENTS**

Students must complete courses listed under "Common Requirements" for the Master of Public Health; see the beginning of this Catalog section.

**M.S.N. CORE COURSES**
Joint Pharm.D./M.P.H.

The College of Pharmacy and the College of Public Health offer the joint Doctor of Pharmacy/Master of Public Health. The joint Pharm.D./M.P.H. requires 42 s.h. of graduate credit in addition to the requirements of the Pharm.D. degree; see "Professional Program (Pharm.D.)" in the College of Pharmacy section of the Catalog. Students who complete the program are granted both degrees.

The Pharm.D./M.P.H. program helps students develop expertise in public health related to pharmacotherapy, health promotion, disease prevention, and medication safety. Its graduates may work in areas of interest common to pharmacy and public health, such as spread and treatment of disease, community health, and immunology; bioterrorism, terrorism, and preparedness; genetics; insurance; managed care; family and juvenile health; and protection of special populations. Employment opportunities are available in hospitals and clinics and with health care providers; private practice; insurance and managed care organizations; local, county, state, and federal government; public health governmental agencies; and colleges and universities.

Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program.

Admission requirements include a bachelor's degree or a minimum of 120 s.h. of undergraduate course work; an undergraduate cumulative g.p.a. of at least 3.00; one semester each of college algebra and biology; transcripts of all college course work; scores (preferably at or above the national median) on the Graduate Record Exam or the Pharmacy College Admission Test (PCAT); and three professional recommendations (University of Iowa recommendation forms are required).

Contact the College of Pharmacy and the College of Public Health for details.

The joint Pharm.D./M.P.H. requires the following course work.

M.P.H. COMMON REQUIREMENTS

Students must complete courses listed under "Common Requirements" for the Master of Public Health; see the beginning of this Catalog section.

M.P.H. ELECTIVES

Students select electives totaling 9 s.h. from one of the following public health areas: biostatistics, community and behavioral health, epidemiology, health communication, health policy, occupational and environmental health, public health genetics, or an approved M.P.H. focus area (aging studies; global health; maternal, child, and family health; or nutrition and exercise). Electives are chosen in consultation with the student's advisors in the Colleges of Pharmacy and Public Health.

COURSES THAT COUNT TOWARD BOTH DEGREES

Students may count up to 12 s.h. earned in the following courses, which are required for the Pharm.D. degree, toward the M.P.H.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>046:129</td>
<td>Pharmaceutical Economics and Insurance</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>046:154</td>
<td>Endocrinology, Ophthalmology, Women's and Men's Health Therapeutics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:156</td>
<td>Cardiovascular Therapeutics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>046:165</td>
<td>Infectious Disease Therapeutics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>069:133</td>
<td>Introduction to Human Pathology for Graduate Students</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

PHARM.D. REQUIREMENTS

Joint Pharm.D./M.P.H. program students must complete the professional curriculum of the Pharm.D. program; see "Doctor of Pharmacy (Pharm.D.)" in the College of Pharmacy section of the Catalog.

Students must be enrolled in the College of Pharmacy in order to take College of Pharmacy courses.

Admission
Applicants to the M.P.H. program must have successfully completed one semester each of college algebra and biology.

All M.P.H. applicants must submit a Graduate College application form, three letters of reference, a statement of purpose that describes their interest in public health and identifies a specialty area, and a résumé highlighting professional experience in public health or in nursing. They also must submit scores on the Graduate Record Exam (GRE) General Test, LSAT, DAT, VCAT, GMAT, or another professional placement exam; scores must be at or above the median scores for test takers applying to similar programs.

Applicants whose first language is not English and who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based) or 250 (computer-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 550-599 (paper-based) or 213-249 (computer-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Application deadlines for fall entrance to the M.P.H. program are May 1 for U.S. citizens and permanent residents, April 1 for international applicants. Application deadlines for spring entrance are November 1 for U.S. citizens and permanent residents, October 1 for international applicants. Application deadlines for summer entrance are April 1 for U.S. citizens and permanent residents, March 15 for international applicants.

Application deadline for the M.P.H. for practicing veterinarians is March 1.

Financial Support

A limited number of modest tuition awards are available each year for M.P.H. students. For information on financing education through jobs, grants, and loans, contact the University's Office of Student Financial Aid.

Master of Public Health Program Courses

170:101 Introduction to Public Health
Concepts, structures, and activities in public health practice. Offered fall semesters and summer sessions. 3 s.h.

170:171 Problems in Public Health
Didactic material in public health, including tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project). arr.

170:172 Independent Study in Public Health
In-depth pursuit of an area of special interest in public health. arr.

170:173 Service-Learning in Public Health
Community service learning experience directly related to goals and objectives of a specific public health course; faculty-guided planning and reflection. arr.

170:175 Public Health Emergency Preparedness for Veterinarians and Other Public Health Disciplines
Introduction to public health emergency preparedness for humans and animals; federal, state, local perspectives; preparing responders; preparedness information systems and communication techniques. 2 s.h.

170:299 M.P.H. Practicum Experience
Occupational and Environmental Health

Head: Craig Zwerling
Professors: Thomas Cook (Physical Therapy and Rehabilitation Science/International Programs), Kenneth Culp (Nursing), Kelley Donham (Nursing), William Field (Epidemiology), Laurence Fuortes (Internal Medicine/Epidemiology/International Programs), Vicki Grissam (Chemistry/Chemical and Biomedical Engineering), Fredric Gerr (Internal Medicine/Epidemiology), Keri Hombuckle (Civil and Environmental Engineering), Paul James (Family Medicine), Joel Kline (Internal Medicine), John Lee (Mechanical and Industrial Engineering/Neurology), James Merchant (Internal Medicine/Nursing), Gene Parkin (Civil and Environmental Engineering), Corinne Peek-Asa (Epidemiology/Nursing), Larry Robertson (Radiation Oncology), Jerald Schnoor (Civil and Environmental Engineering), Peter Thorne (Civil and Environmental Engineering), Craig Zwerling (Internal Medicine/Epidemiology)

Professors emeriti: William Hausler, L.W. Knapp Jr., Keith Long, Donald Morgan, Nancy Sprince

Adjunct professor: John Frederic Green

Clinical professor: Patrick Hartley (Internal Medicine)

Associate professors: Gabriele Ludewig, Patrick O'Shaughnessy (Civil and Environmental Engineering), Wayne Sanderson (Epidemiology), Thomas Schnell (Mechanical and Industrial Engineering), David Wilder (Biomedical Engineering)

Associate professor emeritus: Franklin Kilpatrick

Adjunct associate professors: Kevin Kelly, Burton Kross, Daniel McGehee (Public Policy Center), James McLothlin, Kenneth McManis, Michael Rossman

Clinical associate professors: Craig Bainbridge (Internal Medicine), Henri Cudillty (Internal Medicine), David Osterberg (Geography)

Assistant professors: Renee Anthony, Nathan Fethke, Thomas Peters, Marizen Ramirez

Assistant professor emerita: Pamala Willard (Nursing)

Adjunct assistant professors: Chandran Achutan, Danielle Bickett-Weddle, Gregory Couser, Christine Deignan, Gregory Flamme, Dian Gottlob, Daniel Holub, Carrie LaSeur, Hans-Joachim Lehmler, Murray Madsen, John Rosecrance, Donald Simmons, Laurie Taylor, Roberta Till-Retz, John Vargo, Peter Weyer, Michael Wichman, Catherine Zeman

Clinical assistant professors: Edward Botei (Emergency Medicine/Pediatrics/Pharmacy), George Phillips (Pediatrics), Risto Rautiainen

Web site: http://www.public-health.uiowa.edu/oeh

The Department of Occupational and Environmental Health focuses on assessment of risk factors in the physical environment and their relationship to disease--particularly health problems of agricultural and industrial workers. Students are guided by faculty members whose research interests include rural health care delivery, agricultural health, environmental health, occupational medicine, occupational lung disease, mammalian toxicology, inhalation toxicology, ergonomics, indoor air quality, occupational injury, injury epidemiology, injury prevention programs, aerosol physics, air and water quality, environmental chemistry, analytical toxicology, and environmental health in developing countries.

Graduate Programs

The department offers a Master of Science and a Doctor of Philosophy in occupational and environmental health. Both programs include an optional agricultural safety and health subtrack and an optional industrial hygiene subtrack. The department also offers a joint M.S./M.A. or M.S. with the Graduate College’s Urban and Regional Planning Program; see “Joint M.S./M.A. in Urban and Regional Planning” below.

In addition, the department offers two subtracks for the Master of Public Health: the ergonomics subtrack and the occupational and environmental health subtrack. See "M.P.H. Subtracks" below. It also participates in the College of Public Health's graduate Certificate in Agricultural Safety and Health; see Agricultural Safety and Health in the Catalog.

Individuals who are not enrolled in one of the department's degree programs but wish to take departmental courses may apply for professional improvement status. The department also offers an occupational medicine residency training program.

Master of Science

The Master of Science in occupational and environmental health requires a minimum of 38 s.h. of graduate credit. It is offered with two optional subtracks: agricultural safety and health (requires a minimum of 38 s.h. of graduate credit) and industrial hygiene (requires a minimum of 43 s.h. of graduate credit). All M.S. students are required to complete a thesis, except industrial hygiene profession option students, who must complete a preceptorship.

The following courses are required for all M.S. students.

REQUIRED COURSES

All of these:

175:197 Environmental Health
175:230 Occupational Health
175:260 Environmental Toxicology
175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)
171:161 Introduction to Biostatistics
173:140 Epidemiology I: Principles
050:270 Responsible Conduct in Research

One of these:
069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.

ELECTIVES

Elective courses fill the 38 s.h. requirement for the degree. Students work with their advisors to select electives appropriate for their professional goals.

THESIS

All M.S. students, except those who choose the industrial hygiene professional option, must complete a master's thesis that is accepted for degree credit. Students may earn a maximum of 6 s.h. for the thesis. Additional thesis credit may be allowed for students who take more than 38 s.h.


M.S. Subtrack in Agricultural Safety and Health

The M.S. with subtrack in agricultural safety and health requires a minimum of 38 s.h. of graduate credit. The program prepares students for professional careers in education, health care, insurance, and agribusiness as specialists in agricultural safety and health.

Requirements are as follows.

REQUIRED COURSES

175:196 Agricultural Safety: Theories and Practice 2 s.h.
175:209 Rural Health and Agricultural Medicine 3 s.h.
175:210 Current Topics in Agricultural Health (seminar, taken two times, once for 0 s.h. and once for 1 s.h.) 1 s.h.
175:197 Environmental Health 3 s.h.
175:230 Occupational Health 3 s.h.
175:260 Environmental Toxicology 3 s.h.
175:203 Preceptorship in Occupational and Environmental Health 1 s.h.
175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.) 1 s.h.
171:161 Introduction to Biostatistics 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.
050:270 Responsible Conduct in Research 0 s.h.

One of these:
096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.

ELECTIVES

Agricultural safety and health subtrack students must complete required electives from one of five focus areas; the semester-hour requirement varies by area.

Industrial hygiene: 9 s.h.
Ergonomics: 9 s.h.
Occupational and environmental health: 9 s.h.
Occupational epidemiology: 11 s.h.
Occupational injury prevention: 8 s.h.

THESIS

All M.S. students must complete a master's thesis that is accepted for degree credit. Students must earn a minimum of 3 s.h. for the thesis.

M.S. Subtrack in Industrial Hygiene

The M.S. with subtrack in industrial hygiene requires a minimum of 43 s.h. of graduate credit. The program prepares students for professional careers in industrial hygiene as well as the broad field of occupational and environmental health. Career opportunities are available in health and safety departments of industries; in consulting firms; in academic institutions; and in local, state, and federal public health agencies.

Students choose the research option, which requires a master's thesis, or the professional option, which requires a semester-long practical experience (preceptorship).

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>175:231</td>
<td>Industrial Hygiene Fundamentals</td>
<td>3 s.h.</td>
</tr>
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<td>175:232</td>
<td>Assessing Physical Agent Hazards</td>
<td>3 s.h.</td>
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<td>175:233</td>
<td>Control of Occupational Hazards</td>
<td>3 s.h.</td>
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<td>175:221</td>
<td>Aerosol Technology</td>
<td>3 s.h.</td>
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<tr>
<td>175:230</td>
<td>Occupational Health</td>
<td>3 s.h.</td>
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<td>175:192</td>
<td>Occupational Safety</td>
<td>3 s.h.</td>
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<td>175:190</td>
<td>Occupational Ergonomics I</td>
<td>3 s.h.</td>
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<tr>
<td>175:260</td>
<td>Environmental Toxicology</td>
<td>3 s.h.</td>
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<tr>
<td>175:197</td>
<td>Environmental Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>173:140</td>
<td>Epidemiology I: Principles</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:180</td>
<td>Occupational and Environmental Health Seminar</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>175:182</td>
<td>Statistics for Experimenters</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>050:270</td>
<td>Responsible Conduct in Research</td>
<td>0 s.h.</td>
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</tbody>
</table>

ELECTIVES

Elective courses fill the 43 s.h. requirement for the degree. Students work with their advisors to select electives appropriate for their professional goals.

RESEARCH (THESIS) OPTION

Industrial hygiene subtrack students who choose the research (thesis) option must complete a master's thesis that is accepted for degree credit. Students may earn a maximum of 6 s.h. for the thesis.


PROFESSIONAL (NONTHESIS) OPTION

Industrial hygiene subtrack students who choose the professional (nonthesis) option must complete a preceptorship in industrial hygiene. Students may earn a maximum of 3 s.h. for the preceptorship.

175:203 Preceptorship in Occupational and Environmental Health arr.

Joint M.S./M.A. or M.S. in Urban and Regional Planning

The Department of Occupational and Environmental Health offers a joint master's degree program with the Graduate College's Urban and Regional Planning Program. The joint program leads to an M.S. in occupational and environmental health and an M.A. or M.S. in urban and regional planning. It requires a minimum of 65 s.h. of graduate credit. Separate application to each degree program is required. Applicants must be admitted to both programs before they can be admitted to the joint degree program. See Urban and Regional Planning Program in the Catalog.

M.P.H. Subtracks

The Department of Occupational and Environmental Health offers two subtracks for the Master of Public Health.

The ergonomics subtrack focuses on understanding how workplace environments contribute to musculoskeletal injuries and illness and on control of workplace risk factors. Graduates are prepared to work in industry and government agencies or pursue further academic training.
The occupational and environmental health subtrack provides a broad perspective on public health and career preparation for a variety of professional positions in occupational and environmental health.

See Master of Public Health Program in the Catalog.

**Doctor of Philosophy**

The Doctor of Philosophy in occupational and environmental health requires 72 s.h. of graduate credit. The program prepares students for professional and academic careers in environmental and occupational health. It is offered with two optional subtracks: agricultural safety and health, and industrial hygiene.

All doctoral students must complete a dissertation—a substantial scholarly treatise. Ph.D. requirements are as follows.

**REQUIRED COURSES**

All of these:

- 175:197 Environmental Health 3 s.h.
- 175:230 Occupational Health 3 s.h.
- 175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.) 1 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
- 171:162 Design and Analysis of Biomedical Studies 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 050:270 Responsible Conduct in Research 0 s.h.

One of these:

- 069:133 Introduction to Human Pathology for Graduate Students 4 s.h.
- 096:114 Human Pathophysiology: Organ Systems 3 s.h.
- 096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.

**ELECTIVES**

Students must earn a minimum of 24 s.h. in non-research-related courses, including classroom courses or equivalent web-based courses. Students work with their advisors to select courses appropriate for their professional goals.

**RESEARCH CREDIT**

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation.

- 175:172 Independent Study in Occupational and Environmental Health arr.
- 175:201 Research in Occupational and Environmental Health arr.

**Ph.D. Subtrack in Agricultural Safety and Health**

The Ph.D. with subtrack in agricultural safety and health prepares doctoral students for academic, research, and policy-making careers in occupational and environmental health, with specialty in agricultural safety and health.

Requirements are as follows.

**REQUIRED COURSES**

- 175:196 Agricultural Safety: Theories and Practice 2 s.h.
- 175:209 Rural Health and Agricultural Medicine 3 s.h.
- 050:270 Responsible Conduct in Research 0 s.h.
- 175:210 Current Topics in Agricultural Health (seminar, taken two times, once for 0 s.h. and once for 1 s.h.) 1 s.h.
- 173:157 Zoonotic Diseases 2 s.h.
- 175:197 Environmental Health 3 s.h.
- 175:230 Occupational Health 3 s.h.
- 175:203 Preceptorship in Occupational and Environmental Health 1 s.h.
- 175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.) 1 s.h.
171:161 Introduction to Biostatistics 3 s.h.
171:162 Design and Analysis of Biomedical Studies 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.

One of the following:

096:114 Human Pathophysiology: Organ Systems 3 s.h.
096:115 Human Pathophysiology: Cellular/Neurology/Immunology 3 s.h.

ELECTIVES

Agricultural safety and health subtrack students must complete required electives from one of five focus areas; the semester-hour requirement varies by area.

- Industrial hygiene: 24 s.h.
- Ergonomics: 15 s.h.
- Occupational and environmental health: 24 s.h.
- Occupational epidemiology: 13 s.h.
- Occupational injury prevention: 11 s.h.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation.

- 175:172 Independent Study in Occupational and Environmental Health arr.
- 175:201 Research in Occupational and Environmental Health arr.

Ph.D. Subtrack in Industrial Hygiene

The Ph.D. with subtrack in industrial hygiene provides doctoral students with specialized knowledge in industrial hygiene in addition to their expertise in the broad field of occupational and environmental health.

Requirements are as follows.

REQURED COURSES

- 175:231 Industrial Hygiene Fundamentals 3 s.h.
- 175:232 Assessing Physical Agent Hazards 3 s.h.
- 175:233 Control of Occupational Hazards 3 s.h.
- 175:221 Aerosol Technology 3 s.h.
- 175:220 Environmental and Occupational Epidemiology 3 s.h.
- 175:230 Occupational Health 3 s.h.
- 175:192 Occupational Safety 3 s.h.
- 175:190 Occupational Ergonomics I 3 s.h.
- 175:260 Environmental Toxicology 3 s.h.
- 175:197 Environmental Health 3 s.h.
- 175:180 Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.) 1 s.h.
- 171:162 Design and Analysis of Biomedical Studies 3 s.h.
- 173:140 Epidemiology I: Principles 3 s.h.
- 050:270 Responsible Conduct in Research 0 s.h.

One of these:

- 175:182 Statistics for Experimenters 3 s.h.
- 171:161 Introduction to Biostatistics 3 s.h.
ELECTIVES

Students must earn a minimum of 12 s.h. in non-research-related courses, including classroom courses or equivalent web-based courses. Students work with their advisors to select courses appropriate for their professional goals.

RESEARCH CREDIT

Students earn the remaining credit for the Ph.D. by completing any combination of the following courses or other classroom courses. All Ph.D. students must complete a dissertation.

175:172 Independent Study in Occupational and Environmental Health
175:201 Research in Occupational and Environmental Health
175:300 Thesis/Dissertation

Admission

The occupational and environmental health faculty takes several factors into consideration when evaluating applications for admission, including Graduate Record Exam (GRE) General Test scores, grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. A student with deficiencies in one area may be admitted if all other components of his or her application are very strong.

All M.P.H., M.S., and Ph.D. program applicants must hold a baccalaureate degree and have a cumulative g.p.a. of at least 3.00 (M.P.H. and M.S. applicants) or at least 3.25 (Ph.D. applicants). All applicants must have taken the GRE General Test. A minimum GRE score of 1050 (verbal plus quantitative) is recommended for master's applicants, 1100 for doctoral applicants.

Applicants whose first language is not English and who do not hold a baccalaureate degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand must score at least 600 (paper-based), 250 (computer-based), or 100 (Internet-based) on the Test of English as a Foreign Language (TOEFL). Applicants who score 550-599 (paper-based), 213-249 (computer-based), or 81-99 (Internet-based) are required to take English fluency courses. Applicants who score below those ranges are not considered for admission.

Undergraduate preparation for M.P.H. and M.S. applicants must include course work in mathematics, biology, chemistry, and either physical sciences or engineering, depending on the applicant's chosen specialty area.

M.S. applicants who intend to pursue the industrial hygiene subtrack also must have taken physics and mathematics through calculus; course work in biology, microbiology, and computer programming is highly recommended.

Completion of the M.S. program before beginning Ph.D. study is recommended. Undergraduate preparation for doctoral applicants must include at least two semesters of chemistry, one semester of physics, and one semester of calculus. Course work in biological sciences, microbiology, and computer programming are highly recommended, particularly for students interested in some specialized areas.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Application deadlines for fall entrance for graduate study are July 1 for U.S. citizens and permanent residents, April 1 for international applicants. Application deadlines for spring entrance are December 1 for U.S. citizens and permanent residents, October 1 for international applicants.

Financial Support

Several graduate student awards, including tuition and stipend support, are available for individuals interested in industrial hygiene, agricultural safety and health, ergonomics, occupational epidemiology, or occupational injury prevention. Both stipend and tuition support are available for all occupational medicine residents. Full-time graduate students in good academic standing (those not admitted on conditional status) are eligible for a stipend and tuition support. All other students are eligible for tuition support only; requests are considered case-by-case. All recipients must be U.S. citizens or permanent residents.

Postdoctoral Positions

The College of Public Health’s Environmental Health Sciences Training Program offers postdoctoral positions in environmental health/toxicology. Appointments are made for two years with the possibility of an additional year. Applicants must be U.S. citizens or permanent residents.
Residency Program

In cooperation with University of Iowa Hospitals and Clinics, the department offers residency training in occupational medicine for physicians seeking specialty training in occupational medicine. For information contact the director of the Occupational Medicine Residency Program.

Facilities and Resources

The Department of Occupational and Environmental Health is housed on the University's Oakdale Research Campus in the Institute for Rural and Environmental Health. College of Public Health-based laboratory facilities give researchers and students access to cutting-edge technologies for the study of occupational and environmental health.

The Inhalation Toxicology Facility (ITF) provides a full array of inhalation toxicology, aerosol science, and bioaerosol assay services. A primary focus of the ITF is the study of toxicants found in the agricultural environment and related exposure situations. The facility is particularly well-equipped for studying organic dusts and bioaerosols.

The Occupational Hygiene Laboratory (OHL) provides expertise and equipment for exposure assessment in occupational settings. The OHL provides a range of sample collection capabilities and an extensive inventory of sampling equipment. The field and laboratory services available through the laboratory support exposure-response studies and control technology development studies in a variety of occupational arenas, including agriculture, construction, and indoor environments (home and office).

A computer laboratory is available for student use, and a library collection is located in the Institute for Rural and Environmental Health.

Heartland Center for Occupational Health and Safety

The Heartland Center for Occupational Health and Safety, one of 16 education and research centers funded by the National Institute of Occupational Safety and Health (NIOSH), provides training, education, and outreach. Its program areas are occupational health nursing, industrial hygiene, occupational medicine, ergonomics, agricultural safety and health, occupational injury prevention research, occupational epidemiology, and continuing education/outreach.

Occupational and Environmental Health Courses

175:101 Health, Work, and the Environment 3 s.h.
Current topics in occupational and environmental health; how the United States protects workers, protects people from environmental agents, and reduces environmental harm. Same as 044:174.

175:111 International Health 3 s.h.
Urgent health problems in the developing world and among disadvantaged populations in developed countries; biological, social, cultural, political aspects of international health problems; applications of research methods from epidemiology, environmental health, social sciences. Same as 152:111, 173:111.

175:170 Injury and Violence Prevention 3 s.h.
Theory, research, and practice of injury control; unintentional and intentional injuries; local, national, international injury issues. Same as 173:170.

175:171 Problems in Occupational and Environmental Health arr.
Didactic material in occupational and environmental health; may include tutorial, seminar, faculty-directed independent work (e.g., literature search, project, short research project).

175:172 Independent Study in Occupational and Environmental Health arr.
In-depth pursuit of an area in occupational and environmental health requiring substantial creativity and independence.

175:175 Research Methods in Disaster Studies 3 s.h.
Epidemiologic study of disasters and their health consequences; research to identify and reduce health effects, research in context of response and preparedness. Same as 173:175.

175:180 Occupational and Environmental Health Seminar 0-1 s.h.
Contemporary topics in occupational health, agricultural and comparative medicine, environmental health.

175:182 Statistics for Experimenters 3 s.h.
Application of statistical techniques to evaluate data derived from experimental samples designs; use of spreadsheets, statistical software; design and analysis of experiments; regression analysis; model building; practical applications.

175:185 Occupational Health Research Seminar 2 s.h.
Tools necessary for making critical assessment of published scientific research reports from a methodological perspective; examples from recently published research studies in occupational and environmental health. Corequisites: 171:161 and 173:140.

175:190 Occupational Ergonomics I 2-3 s.h.
Principles of ergonomics, with focus on physical capabilities of workers and their interactions with their work environment; physiological basis of work, patterns of work, occupational risk factors for musculoskeletal and neurovascular disorders, workplace and equipment design, integration of ergonomics in manufacturing processes.

175:192 Occupational Safety 3 s.h.
Principles and practices of occupational safety; applications in industrial and other occupational settings; interactions with other disciplines.

175:193 Environmental Health Law 3 s.h.
Legal foundation of environmental health protection; federal, state, local regulation; police powers; tort liability; investigations and inspections, air and water pollution, biotechnology. Prerequisite: 175:197 or consent of instructor.

175:195 Global Environmental Health 2 s.h.
Current problems, including transboundary movement of pollutants, vectors of infectious agents, global warming and climatic change. Prerequisite: 175:111 or 175:197 or consent of instructor.

175:196 Agricultural Safety: Theories and Practice 2 s.h.
General theories and practice of injury prevention from varied fields, including industrial safety, engineering, regulation, education, epidemiology, social psychology; strategic application in agriculture.

175:197 Environmental Health 3 s.h.
Survey of the field; assessment of contemporary human health issues associated with biological, chemical, physical factors of environment; critical review of environmental factors that affect health; public policies governing recognition, intervention, control.

175:198 Solid and Hazardous Wastes 3 s.h.
Sources, characteristics, collection, disposal of solid and hazardous wastes; environmental impacts of hazardous waste management; resource recovery systems. Prerequisite: (for 053:158) 053:050. Prerequisite: (for 175:198) 175:197 or consent of instructor. Same as 053:158.

175:201 Research in Occupational and Environmental Health arr.
Research that may lead to a dissertation. Repeatable.

175:203 Preceptorship in Occupational and Environmental Health arr.
Work experience using knowledge and skills acquired in the classroom; arranged in conjunction with departmental or collegiate activities or with governmental agencies or private industry. Repeatable.

175:205 Public Health Law 2 s.h.
Introduction to legal principles and case law relevant to public health policy making; constitutional, administrative, and tort law as applied to public health; fluency with legal analysis and terminology. Pre- or corequisite: 175:197.

175:209 Rural Health and Agricultural Medicine 3 s.h.
Clinical orientation of specific health problems of rural residents, agricultural workers; rural health care delivery, socioeconomic issues in agriculture and their effects on health and safety of the agricultural population; occupational health problems, environmental health hazards in rural areas. Prerequisite: 173:140 or medicine enrollment or consent of instructor.

175:210 Current Topics in Agricultural Health 0-1 s.h.
Issues that affect the health of agricultural populations, such as agro-terrorism, antibiotic resistance, genetically modified organisms; current scientific literature.
175:211 Veterinary Public Health: The Profession
History and overview of veterinary public health and the American College of Veterinary Preventive Medicine (ACVPM); preparation for ACVPM board of certification.

175:220 Environmental and Occupational Epidemiology
Environmental and occupational epidemiologic study designs; basic and novel methods of exposure assessment; methodologies to improve study validity. Prerequisite: 173:140. Corequisites: 171:161 and 175:197.

175:221 Aerosol Technology
Particle statistics and physics of aerosols, including inertia, diffusion, nucleation, evaporation, condensation, optics, electrical properties; relationship to fields such as agriculture, nanotechnology, environmental and occupational health, atmospheric chemistry, drug delivery.

175:230 Occupational Health
Principles, practice of occupational medicine, fundamentals of industrial hygiene and safety, occupational health management, ergonomics, occupational health nursing. Offered fall semesters.

175:231 Industrial Hygiene Fundamentals
Principles, with emphasis on recognition of chemical health hazards, physical health hazards at work. Pre- or corequisite: 175:230.

175:232 Assessing Physical Agent Hazards
Basic principles of recognizing and evaluating hazards presented by physical agents in occupational environments. Prerequisite: 175:230.

175:233 Control of Occupational Hazards
Physical science concepts applied to control of occupational hazards ranging from dusts to mists to vapors; strategies, management issues, personal protective equipment, implementation skills; in-depth instruction on local exhaust ventilation system design. Prerequisite: 175:230 or 175:231 or consent of instructor.

175:251 Injury Epidemiology
How epidemiology can be applied to injury prevention and control: epidemiology literature, specific methodological problems involved in the epidemiology of injuries, critical evaluation of research articles. Offered spring semesters of odd years. Prerequisite: 173:140 or consent of instructor. Same as 173:251.

175:252 Environmental Health Policy
Major concerns in environment and human health, legislation enacted to deal with these concerns; emphasis on contemporary issues. Offered fall semesters of odd years. Prerequisite: (for 175:252) 175:197 or consent of instructor. Prerequisite: (for 053:204) 053:050. Same as 053:204, 152:252.

175:253 Epidemiology of Occupational Injuries
Epidemiological literature on occupational injuries and their prevention; focus on research methods. Offered spring semesters of even years. Prerequisite: 173:140 or consent of instructor. Same as 173:253.

175:260 Environmental Toxicology
Sources, routes of absorption, effects of environmental toxicants affecting man; pathophysiology of toxicant actions, including those of air and water pollutants, metals, pesticides, solvents, food toxicants, chemicals. Prerequisite: college organic and inorganic chemistry, or physiology, or biochemistry.

175:265 Advanced Toxicology
Hepatic metabolism and toxification mechanisms, pulmonary and immunotoxicology, nervous system poisons and their mechanisms of action, general and molecular concepts of chemical carcinogenesis. Prerequisite: 175:260 or equivalent or consent of instructor.

175:285 Advanced Topics in Occupational Medicine
Skills and knowledge for evaluating and treating patients with work-related illness.

175:294 Occupational Ergonomics II
Application of ergonomic principles in varied work settings, through case study approach; participatory ergonomics, economics of ergonomics, workforce issues, psychosocial factors, shift work, integration of ergonomics into business models, current legislative issues, legal aspects of ergonomics, international perspectives; biomedical instrumentation used for risk factor exposure measurements.

175:295 Clinical Ergonomics
Clinical orientation to specific ergonomic problems and issues; preparation for conducting independent on-site ergonomic evaluations in occupational settings; experience developing and evaluating ergonomic inventions in an occupational setting; rotation through an occupational medicine clinic. Prerequisite: 175:190 or consent of instructor.

175:300 Thesis/Dissertation
Repeatable.

175:996 Occupational Medicine
In-depth study of an area in occupational and environmental medicine, with clinical experience in an outpatient community setting. Four-week course. Prerequisite: M.D. enrollment.
Public Health Genetics

Interim head: Leon Burmeister
Graduate degree: Ph.D. in Statistical Genetics
Graduate nondegree program: Certificate in Statistical Genetics

Graduate Programs

The Public Health Genetics Program offers a Doctor of Philosophy and a graduate certificate, both in statistical genetics.

Admission to the Ph.D. in statistical genetics has been suspended.

Doctor of Philosophy

The Doctor of Philosophy in statistical genetics requires a minimum of 82 s.h. of graduate credit. The program prepares students for professional and academic careers in statistical genetics. It provides training in the development and evaluation of new statistical methods for analyzing human genetic data, and the application of those methods to discovering and understanding the genes underlying human disease. It also prepares students to contribute to collaborative clinical research by providing them with training in genetics and with opportunities to participate in research involving collaboration with molecular and clinical geneticists and genetic epidemiologists.

Students complete a 42 s.h. core; 9-12 s.h. in a concentration area outside statistical genetics (biostatistics/statistics, computer science/bioinformatics, biology/bioinformatics, or epidemiology/biostatistics); up to 25 s.h. of elective course work chosen in consultation with their advisors; and at least 6 s.h. of dissertation credit. They also must successfully complete a comprehensive examination and a dissertation—a substantial scholarly treatise for which they must earn at least 6 s.h. The dissertation research topic and content must be approved by the student's dissertation committee.

Ph.D. requirements are as follows.

REQUIRED CORE

All Ph.D. students must complete the following courses (42 s.h.).

22C:104 Introduction to Informatics 3 s.h.
22S:153 Mathematical Statistics I 3 s.h.
22S:154 Mathematical Statistics II 3 s.h.
070:110 Medical Genetics 2 s.h.
171:201 Biostatistical Methods I 4 s.h.
173:225 Genetics and Epidemiology 4 s.h.
185:272 Population and Quantitative Genetics 3 s.h.
185:274 Theory of Statistical Genetics 3 s.h.
185:276 Statistical Genetics Laboratory (taken three times) 9 s.h.
185:278 Computing Algorithms in Statistical Genetics 3 s.h.
185:285 Clinical Genetics Practicum 1 s.h.
650:270 Principles of Scholarly Integrity 1 s.h.

CONCENTRATION AREA

All Ph.D. students complete one of the following concentration areas.

Biostatistics/Statistics

Both of these:
171:251 Theory of Biostatistics I 4 s.h.
171:252 Theory of Biostatistics II 4 s.h.

One of these:
22S:138 Bayesian Statistics 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:248 Computer Intensive Statistics 3 s.h.
171:261 Survival Data Analysis 3 s.h.

**Biology/Bioinformatics**

Both of these:

002:128 Fundamental Genetics 4 s.h.
002:170 Bioinformatics 3 s.h.

One of these:

002:131 Evolution 4 s.h.
002:162 Population Genetics and Molecular Evolution 3 s.h.
127:191 Human Molecular Genetics 3 s.h.

**Computer Science/Bioinformatics**

All of these:

002:170 Bioinformatics 3 s.h.
06K:272 Database Analysis and Design 3 s.h.
06K:275 Knowledge Discovery 3 s.h.

**Epidemiology/Biostatistics**

Both of these:

171:241 Applied Categorical Data Analysis 3 s.h.
173:140 Epidemiology I: Principles 3 s.h.

One of these:

173:255 Epidemiology of Infectious Diseases 3 s.h.
173:265 Cardiovascular Disease Epidemiology 3 s.h.
173:267 Psychiatric Epidemiology 3 s.h.
173:270 Cancer Epidemiology and Control 3 s.h.

**ELECTIVES**

Students select up to 25 s.h. of elective courses from this list. They also may substitute other courses with written approval of the program's director and their advisors.

22S:138 Bayesian Statistics 3 s.h.
22S:161 Applied Multivariate Analysis 3 s.h.
22S:255 Linear Models 4 s.h.
22S:256 Multivariate Analysis 3 s.h.
171:185 Microarray Data Analysis 3 s.h.
171:261 Survival Data Analysis 3 s.h.
171:262 Analysis of Categorical Data 3 s.h.
171:264 Longitudinal Data Analysis 3 s.h.
185:281 Independent Study in Statistical Genetics arr.

**DISSERTATION**

Students must earn at least 6 s.h. for the dissertation and must be in residence a minimum of two years.

185:300 Dissertation in Statistical Genetics 6 s.h.
Certificate

The Certificate in Statistical Genetics requires 16 s.h. of graduate credit. The program prepares students for careers as data analysts on research projects involving human genetic data.

The certificate is designed to complement an M.S. in biostatistics or a related field, such as statistics. It can be completed either in conjunction with or after completing an M.S. The certificate cannot be awarded before completion of an M.S.

The certificate requires the following course work. Students must maintain a g.p.a. of at least 3.00 in the required courses.

- 070:110 Medical Genetics 2 s.h.
- 173:225 Genetics and Epidemiology 4 s.h.
- 185:276 Statistical Genetics Laboratory 3 s.h.
- 185:280 Preceptorship in Statistical Genetics (must be approved by the head of the Program in Public Health Genetics) 3 s.h.
- 185:285 Clinical Genetics Practicum 1 s.h.

Admission

 Admission to the Ph.D. in statistical genetics has been suspended.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College or the Graduate College section of the Catalog.

Resources

The Center for Statistical Genetics Research supports research on complex human inherited disease through basic methodological work in statistical genetics and promotion of interdisciplinary, collaborative, clinical-genetic research. The center provides opportunities for graduate students and postdoctoral fellows to be involved in research throughout their training.

Public Health Genetics Courses

- 185:272 Population and Quantitative Genetics 3 s.h.
- 185:274 Theory of Statistical Genetics 3 s.h.
- 185:276 Statistical Genetics Laboratory 3 s.h.
- 185:278 Computing Algorithms in Statistical Genetics 3 s.h.
- 185:280 Preceptorship in Statistical Genetics arr.
- 185:285 Clinical Genetics Practicum 1 s.h.
  Clinical case conferences, participation in clinical genetics journal club. Prerequisites: 650:270 and statistical genetics Ph.D. student standing. Corequisite: 070:110.
- 185:290 Statistical Genetics Seminar 1 s.h.
University College

Dean: Beth F. Ingram

University College is home to a wide range of programs for University of Iowa students and precollege students. It includes major college-level programs such as the University of Iowa Honors Program, Study Abroad, Career Center Programs, and study at Iowa Lakeside Laboratory.

It also offers a program leading to the Bachelor of Applied Studies (B.A.S.), which is designed for graduates of community college technical programs who wish to complete a bachelor’s degree without interrupting their careers. The B.A.S. provides alternatives to traditional majors. Students work with their advisors to plan their own emphasis areas, which may help them advance in their chosen careers, begin new careers, or prepare for graduate or professional study.

Some University College programs are designed to smooth entering students’ transition to college life, such as the College Success Initiatives program and the First-Year Programs, or to provide opportunities for populations underrepresented in the sciences and engineering, such as Iowa Biosciences Advantage.

Lifetime Leisure Skills courses in a broad range of sport and fitness activities are offered through University College, as are special courses for student orientation advisors, residence hall assistants, fraternity and sorority community leaders, and students who design web sites for University departments and offices.

The University’s Reserve Officer Training Corps programs, Aerospace Studies and Military Science, reside in University College.

In addition, University College offers courses in several precollege programs: the Belin-Blank Center for Gifted Education, the Center for Diversity & Enrichment, the Iowa Young Writers’ Studio, the Secondary Student Training Program, and University of Iowa Upward Bound.

Courses offered through University College programs are taught by University of Iowa faculty and staff members.
Aerospace Studies (Air Force ROTC)

Head: Lt. Col. Steven R. Nielsen  
Assistant professors: Capt. Chris Klaiber, Capt. Randy Larson  
Web site: http://www.uiowa.edu/~afrotc

The Aerospace Studies Program administers the Air Force Reserve Officer Training Corps (AFROTC) at The University of Iowa. AFROTC educates highly qualified students who are working toward a degree and a commission as an officer in the United States Air Force.

AFROTC is voluntary, with courses open to all undergraduate and graduate students. The amount of AFROTC academic credit that may be applied toward a degree varies from college to college at the University. The College of Liberal Arts and Sciences, for example, accepts a maximum of 20 s.h.

In order to receive a commission, AFROTC cadets must complete all University of Iowa requirements for a degree as well as courses specified by the U.S. Air Force.

Programs

AFROTC offers programs lasting two years, three years, and four years. Joining early gives students the opportunity to try AFROTC without obligation. It also can give them an advantage in the scholarship selection process.

The AFROTC program's three main components are the general military course, the professional officer course, and field training.

General Military Course

The general military course (GMC) consists of one AFROTC course (1 s.h.) and a leadership laboratory taken each semester for two years. Any student who meets AFROTC qualifications and is in good academic standing is eligible to participate in the GMC. Students normally apply for the GMC up to the time they earn 60 s.h. Students who have earned more than 60 s.h. may enroll in the GMC if they are willing to extend their academic plan by a semester or more.

Professional Officer Course

The professional officer course (POC) consists of one AFROTC course (3 s.h.) and a leadership laboratory taken each semester for two years. Students accepted into the POC make a commitment to serve a minimum of four years as U.S. Air Force officers. To enter the POC, students must be selected to attend and must successfully complete field training. Students generally take the POC during their last 60 s.h.

Field Training

All POC applicants must successfully complete field training at a U.S. Air Force base. Field training is an intensive, four-week program completed the summer after the sophomore year. It provides a first-hand look at the active duty Air Force and develops military leadership and discipline. Students participate in aircraft and aircrew orientation, junior officer education, marksmanship, survival training, and physical fitness training. When they complete the program, they are ready to return to school and assume a leadership position in the AFROTC program.

Students receive authorized pay and allowances when they attend field training.

Activities

Students have the option to compete for acceptance to a variety of optional AFROTC summer training programs. They can shadow a junior officer in a career field of interest, or they can compete to attend the Air Force Academy's free-fall parachute, glider, or combat survival schools. Students can return to field training as cadet training assistants, go to the Pentagon to see how the Air Force operates, or travel to a foreign country for a cultural immersion program. The Air Force provides transportation, meals, lodging, and a daily expense allowance for all summer programs.

Throughout the year, students may learn more about the Air Force by choosing to participate in base visits, aircraft orientation rides, a Dining Out (a formal ball in Air Force tradition), and other activities.

The AFROTC Cadet Corps also sponsors many social events, including informal parties, formal dinners, and intramural athletics.

Education Delay
Cadets may request an education delay to postpone entry to active duty until after completion of an advanced degree or professional training program.

Financial Aid

Merit scholarships are available for one, two, and three years of study. They provide tuition, fees, a $900 stipend for books, and a tax-free subsistence allowance of $300-500 per month. Applicants are selected based on objective and subjective factors. Students should apply directly to the head of aerospace studies. Students majoring in certain high-demand disciplines may be eligible for an express scholarship upon acceptance to AFROTC.

All cadets in the last two years of AFROTC are eligible for some financial assistance. They receive a tax-free subsistence allowance of $450-500 per month. Uniforms are furnished as well as all books for AFROTC classes.

Aerospace Studies Courses

23A:010 Foundations of the U.S. Air Force I 1 s.h.
Introduction to U.S. Air Force: military customs and courtesies, basic oral and written communication techniques, careers available to Air Force officers. Prerequisite: first-year or sophomore standing or consent of instructor.

23A:011 AFROTC Leadership Laboratory (LLAB) AS 100-FA 1 s.h.
A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered fall semesters. Prerequisite: first-year or sophomore standing or consent of instructor. Corequisite: 23A:010.

23A:012 Foundations of the U.S. Air Force II 1 s.h.
Continuation of 23A:010; leadership theory and practice, team building, diversity in the work force. Prerequisite: first-year or sophomore standing or consent of instructor.

23A:013 AFROTC Leadership Laboratory (LLAB) AS 100-SP 1 s.h.
A progression of experiences designed to develop leadership ability; military customs and courtesies, drill and ceremonies, military professional development, the life and work of a junior officer; leadership skills in a practical, supervised military lab setting. Offered spring semesters. Prerequisite: first-year or sophomore standing or consent of instructor. Corequisite: 23A:012.

23A:020 Evolution of USAF Air and Space Power I 1 s.h.
Air power from Civil War hot air balloons through World War II; emphasis on developments in U.S. Air Force.

23A:021 AFROTC Leadership Laboratory (LLAB) AS 200-FA 1 s.h.

23A:022 Evolution of USAF Air and Space Power II 1 s.h.
Continuation of 23A:020; air power from post-World War II to present; emphasis on developments in U.S. Air Force.

23A:023 AFROTC Leadership Laboratory (LLAB) AS 200-SP 1 s.h.

23A:130 Air Force Leadership Studies I 3 s.h.
Emphasis on management, leadership, communication skills required of an Air Force officer. Prerequisite: junior or higher standing or consent of instructor.

23A:131 AFROTC Leadership Laboratory (LLAB) AS 300-FA 1 s.h.

23A:132 Air Force Leadership Studies II 3 s.h.
Continuation of 23A:130; leadership topics in counseling, accountability, ethics. Prerequisite: junior or higher standing or consent of instructor.

23A:133 AFROTC Leadership Laboratory (LLAB) AS 300-SP 1 s.h.
23A:140 National Security Affairs and Active Duty Preparation I  
America's evolving national security policy; structure of national security agencies, development of national security strategies; global regions and their historical and current importance to U.S. security policies. Prerequisite: junior or higher standing or consent of instructor.

23A:141 AFROTC Leadership Laboratory (LLAB) AS 400-FA  

23A:142 National Security Affairs and Active Duty Preparation II  
Continuation of 23A:140; Department of Defense structure, missions, and responsibilities, with emphasis on role of the U.S. Air Force; Air Force standards; preparation for active duty as Air Force junior officers. Prerequisite: junior or higher standing or consent of instructor.

23A:143 AFROTC Leadership Laboratory (LLAB) AS 400-SP  

23A:150 Readings in Contemporary Military Issues  
Independent research on the U.S. Air Force; historical topics, current missions, future technologies, comparisons to other nations. Prerequisite: consent of instructor.

23A:171 AFROTC Leadership Lab AS 700  
Opportunity to use leadership skills acquired in previous AFROTC classes; experience providing leadership to the Cadet Corps, under direction of commandant of cadets. Prerequisites: 23A:141 and 23A:143.

23A:173 AFROTC Leadership Lab AS 700  

The Alliances for Graduate Education and the Professoriate Summer Program (AGEP) prepares students to pursue graduate education in engineering and in the mathematical, physical, and life sciences. The eight-week program offers early research experience by matching students with University of Iowa faculty mentors in the students’ interest areas. It also gives participants the opportunity to experience life as a graduate student at a large university.

Students are required to participate in weekly seminars and in social, cultural, and educational activities. They also tour facilities both on and off campus. A final report/project is required. The program ends with a research symposium at which students make oral and poster presentations of their research.

Applicants must be U.S. citizens or permanent residents, and members of an underrepresented minority (African American, Hispanic, or American Indian). They must be undergraduate students pursuing a degree in science, technology, engineering, or mathematics. To enter the program, applicants must have completed their sophomore year in college and have a cumulative g.p.a. of at least 3.00. Graduating seniors are not eligible.

For information on AGEP's summer 2010 programs, see the Alliances for Graduate Education and the Professoriate web site.
The Bachelor of Applied Studies (B.A.S.) is designed for graduates of community college technical programs who wish to complete a bachelor's degree by distance education. The B.A.S. is a general undergraduate degree without a traditional academic major. Students work with their academic advisors to structure programs that meet their individual objectives.

B.A.S. students may plan programs designed to help them advance in their chosen careers, begin new careers, or prepare for graduate or professional study. Students who have specific career goals or advanced degree programs in mind should learn what educational background they will need in order to achieve their goals, and they should include appropriate course work in their B.A.S. programs.

Students may earn credit toward the degree through several types of courses, including Saturday & Evening Classes, web-based independent study courses, semester-based web courses, extension courses at sites throughout Iowa, and regular session courses.

B.A.S. students may not earn minors.

Individuals interested in applying to the B.A.S. program should hold an A.A.S., an A.A., or an A.S. degree and should have work experience; see "Admission" below for more detailed admission requirements.

The B.A.S. is awarded by University College and is administered by the Division of Continuing Education.

### Bachelor of Applied Studies

The Bachelor of Applied Studies requires a minimum of 120 s.h. and is intended to be completed entirely by distance education. Students must earn at least 30 s.h. of credit toward the degree in University of Iowa courses after admission to the B.A.S. program. They must earn at least 60 s.h. of the minimum 120 s.h. at four-year colleges, including 45 s.h. in course work defined as upper-level. For the B.A.S., University of Iowa courses are considered upper-level if they are numbered 100 and above. Some courses numbered below 100 may be considered upper-level for the B.A.S.; for a list of these courses, contact Distance Education.

The program of study requires that students complete 12 s.h. in three of the following five distribution areas (total of 36 s.h.). In each distribution area, 6 of the required 12 s.h. must be earned in upper-level courses.

- Humanities (e.g., literature, history, philosophy, religion)
- Communication and arts (e.g., journalism, speech, drama, art, music)
- Natural sciences and mathematics (e.g., geology, biology, statistics, computer science)
- Social sciences (e.g., geography, psychology, economics, political science, anthropology)
- Professional fields (e.g., business, education, nursing, social work, library science)

Credit applied toward completion of the B.A.S core requirements (see "Admission" later in this section) does not count toward the B.A.S. distribution area requirements, but it does count toward the required 45 s.h. of upper-level course work, if applicable.

Students must maintain a cumulative g.p.a. of 2.00 or higher in all course work attempted, work undertaken at The University of Iowa, and all upper-level course work.

All Division of Continuing Education policies regarding pass/nonpass and satisfactory/fail grading, academic standards, and so forth apply to B.A.S. students (for details, see http://www.continuetolearn.uiowa.edu/ccp/de/student_handbook).

### Optional Certificate or Focus Area

Students may incorporate one of three online certificate programs into their B.A.S. studies: the Certificate in Entrepreneurship, the Certificate in Nonprofit Management, or the Certificate in Public Health. Or they may use an interdisciplinary approach to plan an individualized focus area.

#### CERTIFICATE IN ENTREPRENEURIAL MANAGEMENT

The Certificate in Entrepreneurial Management is offered by the Tippie College of Business. It requires 18-20 s.h. Courses are offered via the World Wide Web. See Entrepreneurship (Tippie College of Business) in the Catalog or contact the Tippie College of Business for details.
CERTIFICATE IN NONPROFIT MANAGEMENT

The Certificate in Nonprofit Management is offered by University College in collaboration with Distance Education and the Larned A. Waterman Iowa Nonprofit Resource Center. The certificate requires 18 s.h. Courses are offered primarily on the World Wide Web. See Nonprofit Management (University College) in the Catalog or contact Distance Education for details.

CERTIFICATE IN PUBLIC HEALTH

The Certificate in Public Health is offered by the College of Public Health and is designed primarily for individuals working in public health practice and for those considering public health careers. The certificate requires 12 s.h. Courses are offered via the World Wide Web. Applicants must have substantial relevant work experience. Contact the College of Public Health for details.

INTERDISCIPLINARY FOCUS AREA

In collaboration with their B.A.S. advisor, students may design a focus in one of a variety of interdisciplinary areas (e.g., aging studies, human services, technical writing, family studies).

Admission

Individuals who wish to earn a B.A.S. must apply formally for admission to the program. Prospective students should contact the Distance Education office before applying.

The B.A.S. is designed for students who need to earn a bachelor's degree by distance education. Individuals who have access to the full range of the University's on-campus daytime classes should seek admission to the College of Liberal Arts and Sciences in order to earn a degree with a major. The interdepartmental studies major allows students to tailor a degree program to their individual interests (see Interdepartmental Studies in the Catalog).

Applicants to the B.A.S. program must have earned an Associate of Applied Science (A.A.S.) degree, an Associate of Arts (A.A.), or an Associate of Science (A.S.) from a community college that participates in the Iowa Community College/Regents Articulation Agreement. They must have a minimum of 60 s.h. of approved transfer credit. Applicants who graduated from an Iowa community college must have a cumulative g.p.a. of at least 2.00; those who graduated from a community college outside Iowa must have a cumulative g.p.a. of at least 2.50. The program recommends that applicants have three or more years of work experience.

It is recommended that B.A.S. applicants complete the following B.A.S. minimum core requirements before entering the program.

Rhetoric: total of 4-8 s.h. (the requirement includes two composition courses and one speech course)
Quantitative or formal reasoning (3 s.h.)
Social sciences (3 s.h.)
Cultural diversity (3 s.h.)
Business/management (6 s.h.)

See a B.A.S. advisor for a list of other acceptable courses.

Contact Distance Education for more information about the B.A.S. program.
Belin-Blank Center for Gifted Education

The following programs are offered through the Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development. Students in each of the Belin-Blank programs participate in cultural and recreational activities and have access to University of Iowa libraries, computer facilities, and study areas. Housing and meals are provided at the University's residence halls. For more information about the center's programs, contact the Belin-Blank Center for Gifted Education and Talent Development or visit the center's web site.

Asian and Pacific Studies Institute

The Asian and Pacific Studies Institute (APSI) is a one-week residential summer program for gifted students. A collaboration of The University of Iowa’s Center for Asian and Pacific Studies and the Belin-Blank Center, APSI provides talented students with an intensive, advanced educational experience designed to enhance their intellectual and social growth.

To be eligible for the institute, students must have finished grade 9, 10, or 11 and must be nominated by their schools. Financial support is available.

Blank Summer Institute

The Blank Summer Institute for the Arts & Sciences (BSI) is a one-week residential summer program for exceptionally talented Iowa students. BSI provides participants with an intensive, advanced educational experience designed to enhance their intellectual and social growth. The study plan, which complements the regular school curriculum, consists of eight courses that explore advanced science, math problem solving, social sciences, creative writing, invention and innovation, visual arts, performing arts, and global and cultural studies.

To be eligible for the institute, students must have finished grade 7 or 8 and must be nominated by their schools. Financial support is available.

Iowa Governor's Institute

The Iowa Governor's Institute for the Gifted and Talented (IGI) is a one-week residential summer program that provides exceptionally talented students with an intensive, advanced educational experience designed to enhance their intellectual and social growth. Participants enroll in one course, Leadership for Students Who Want to Make a Difference.

To be eligible for the institute, students must be from Iowa and must have finished grade 7 or 8. A nomination packet is required, and financial support is available.

Iowa Talent Project

The Belin-Blank Center and the Des Moines and Cedar Rapids school districts collaborate through the Iowa Talent Project (ITP) to identify underrepresented talented and gifted students who are taking upper-level or advanced courses as they progress through secondary school. The project's goal is to help students recognize their potential and take advantage of rigorous courses of study that challenge them.

Participants attend a residential summer program at The University of Iowa that focuses on college preparation. They enjoy recreational and cultural experiences while they are on campus. ITP students also complete advanced placement (AP) courses and take at least three AP exams. The cost of attending the session is covered by the University.

Upon finishing high school, successful ITP students are admitted to The University of Iowa and are given financial aid based on need and merit. Once enrolled at the University, students must maintain a designated grade-point average while taking approved courses as full-time students and must meet other specified requirements.

Junior Scholars Academy

Students in grade 6, 7, or 8 may attend the Junior Scholars Academy (JSA), a one-week summer residential academic program at The University of Iowa for Belin-Blank Center students. JSA consists of 10 classes over two one-week sessions. Students take a single advanced course for the entire week and may apply for one or two sessions.

National Scholars Academy

Students in grade 9, 10, or 11 may attend the National Scholars Academy (NSA), a one-week summer residential academic program at The University of Iowa for Belin-Blank Center students. NSA students choose one of the four advanced one-week courses that the academy offers each summer.
Visual Arts Institute
The Visual Arts Institute (VSI) is a one-week residential summer program for artistically talented students in grades 9, 10, and 11. The institute provides talented artists with an intensive, advanced studio experience designed to enhance their creative and artistic growth. Each student receives a partial scholarship to cover the majority of the institute's cost.

Belin-Blank Center for Gifted Education Courses

166:008 Iowa Talent Project 0 s.h.
166:010 National Scholars Academy 0 s.h.
166:012 Blank Summer Institute for the Arts and Sciences 0 s.h.
166:031 Junior Scholars Academy 0 s.h.
166:033 Iowa Governor's Institute 0 s.h.
166:034 Advanced Placement Academy 0 s.h.
166:035 Environmental Health Sciences Institute for Rural Youth 0 s.h.
166:036 Wallace Summer Institute 0 s.h.
166:037 Asian and Pacific Studies Institute 0 s.h.
166:039 Foreign Language Summer Institute 0 s.h.
Career Center Programs

Director: David Baumgartner
Web site: http://www.careers.uiowa.edu

The University of Iowa Marvin A. and Rose Lee Pomerantz Career Center administers the University's Career Center Programs. The center helps students explore and plan careers, search for employment and internship opportunities, and prepare for interviews. Students may use the Pomerantz Career Center's services at any time during their academic careers, but the center encourages entering first-year and transfer students to visit after they arrive on campus and to make use of all of the center's services throughout their study at Iowa.

The center offers online workshops throughout the year on a variety of topics, including résumé writing, job and internship search techniques, employer research, interviewing skills, and more. It hosts several career fairs each fall and spring, offering students the opportunity to talk with and learn about prospective employers.

The Pearson Library contains career-related books, periodicals, and online resources—some broad in scope, others targeted to specific careers or jobs. Employer recruiting brochures join information on salaries, geographical cost of living, resources for jobs and internships, graduate schools, and other topics.

The Pomerantz Career Center facilitates job and internship interviewing with a wide range of employers—regional, national, and international; profit and nonprofit; state and federal government. Employers conduct on-campus interviews at specific times during the year, and many post immediate openings year-round, for internships and for full-time positions. On-campus recruiting and job postings are available on the center's web site. The center also offers career-related courses and the Career Leadership Academy.

The center helps students find internships in Iowa, the Midwest, nationwide, and sometimes in other countries. For a list of discipline-related internships (all require course registration), see "Career Center Programs Courses"/"Internships" below.

For more information about the center's services and facilities, contact the Pomerantz Career Center.

Career Center Programs Courses

Career Exploration

409:102 Job Search Strategies 2 s.h.
How to conduct successful job search; résumé development, interviewing, networking, branding, job search strategies; develop career management plan.

409:106 Career Leadership Academy--Phase 1 1 s.h.
Concepts in leadership and employee development; how to gain skills that employers want; leadership theory and the work world. First in a four-semester sequence.

409:107 Career Leadership Academy--Phase 2 1 s.h.
Concepts in leadership and employee development; how to gain skills that employers want; leadership theory and the work world. Second in a four-semester sequence. Prerequisite: 409:106.

409:108 Career Leadership Academy--Phase 3 1 s.h.
Concepts in leadership and employee development; how to gain skills that employers want; leadership theory and the work world. Third in a four-semester sequence. Prerequisites: 409:106 and 409:107.

409:109 Career Leadership Academy--Phase 4 1 s.h.
Concepts in leadership and employee development; how to gain skills that employers want; leadership theory and the work world. Last in a four-semester sequence. Prerequisites: 409:106, 409:107, and 409:108.

409:110 Career Planning 2 s.h.
Helps students identify their interests, skills, and values relative to majors and careers; self-assessment, information interviews, research on majors and careers, site visits.
**Internships**

Students must register before beginning an internship in order for the internship to be noted on the transcript.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>409:001</td>
<td>Internship in Art</td>
<td>0 s.h.</td>
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<tr>
<td>409:002</td>
<td>Internship in Biological Science</td>
<td>0 s.h.</td>
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<tr>
<td>409:003</td>
<td>Internship in Speech Pathology and Audiology</td>
<td>0 s.h.</td>
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<tr>
<td>409:004</td>
<td>Internship in Chemistry</td>
<td>0 s.h.</td>
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<tr>
<td>409:006</td>
<td>Internship in Business</td>
<td>0 s.h.</td>
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<tr>
<td>409:007</td>
<td>Internship in Education</td>
<td>0 s.h.</td>
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<td></td>
<td><strong>Prerequisite:</strong> admission to teacher education program.</td>
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<tr>
<td>409:008</td>
<td>Internship in English</td>
<td>0 s.h.</td>
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<tr>
<td>409:009</td>
<td>Internship in French</td>
<td>0 s.h.</td>
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<tr>
<td>409:012</td>
<td>Internship in Geoscience</td>
<td>0 s.h.</td>
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<td><strong>Prerequisites:</strong> cumulative g.p.a. of at least 2.50, g.p.a. in geology courses of at least 3.00, and grade of C or higher in 012:052.</td>
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<tr>
<td>409:013</td>
<td>Internship in German</td>
<td>0 s.h.</td>
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<td>409:015</td>
<td>Internship</td>
<td>0 s.h.</td>
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<tr>
<td>409:016</td>
<td>Internship in History</td>
<td>0 s.h.</td>
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<tr>
<td>409:019</td>
<td>Internship in Journalism</td>
<td>0 s.h.</td>
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<tr>
<td>409:020</td>
<td>Internship in Classics</td>
<td>0 s.h.</td>
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<tr>
<td>409:021</td>
<td>Internship in Library Science</td>
<td>0 s.h.</td>
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<tr>
<td>409:022</td>
<td>Internship in Computer Science</td>
<td>0 s.h.</td>
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<td></td>
<td><strong>Prerequisites:</strong> 22C:021, 22M:025 or 22M:031, and 24 s.h. of undergraduate course work.</td>
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<tr>
<td>409:024</td>
<td>Internship in Museum Studies</td>
<td>0 s.h.</td>
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<tr>
<td>409:025</td>
<td>Internship in Music</td>
<td>0 s.h.</td>
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<tr>
<td>409:027</td>
<td>Internship in Integrative Physiology</td>
<td>0 s.h.</td>
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<tr>
<td></td>
<td><strong>Prerequisite:</strong> admission to integrative physiology.</td>
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<tr>
<td>409:028</td>
<td>Internship in Health and Sport Studies</td>
<td>0 s.h.</td>
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<tr>
<td>409:029</td>
<td>Internship in Physics and Astronomy</td>
<td>0 s.h.</td>
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<tr>
<td>409:030</td>
<td>Internship in Political Science</td>
<td>0 s.h.</td>
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<td>409:031</td>
<td>Internship in Psychology</td>
<td>0 s.h.</td>
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<tr>
<td>409:032</td>
<td>Internship in Religious Studies</td>
<td>0 s.h.</td>
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</tbody>
</table>
409:033 Internship in Literature, Science, and the Arts 0 s.h.
409:034 Internship in Sociology 0 s.h.
409:035 Internship in Spanish 0 s.h.
409:036 Internship in Communication Studies 0 s.h.
409:039 Internship in Asian Languages and Literature 0 s.h.
409:041 Internship in Russian 0 s.h.
409:042 Internship in Social Work 0 s.h.
409:044 Internship in Geography 0 s.h.
409:045 Internship in American Studies 0 s.h.
409:048 Internship in Cinema and Comparative Literature 0 s.h.
409:049 Internship in Theatre Arts 0 s.h.
409:061 Internship in Microbiology 0 s.h.
409:062 Internship in Informatics 0 s.h. Prerequisites: 22C:080 and 24 s.h. of undergraduate course work.
409:070 Global Internship Preparation 1 s.h. Classroom preparation for international summer internship program in London and Madrid; internship goal setting, predeparture orientation activities, reflective learning, professional development concepts.
409:091 Internship in Law 0 s.h.
409:099 Internship in Biochemistry 0 s.h.
409:103 Internship in Linguistics 0 s.h.
409:104 Des Moines Center Classroom 3 s.h. Classroom section of Des Moines Center internship program; taught in Des Moines, Iowa. Corequisite: 409:105.
409:105 Des Moines Center Internship 9 s.h. Professional internship in Des Moines, Iowa; offered in areas including business, finance, accounting, marketing, nonprofit organizations, outreach, environmental science, government. Prerequisites: enrollment in business or engineering or liberal arts and sciences; 2.50 g.p.a.; and second-year standing or higher. Corequisite: 409:104.
409:112 International Internship: London 2 s.h. One-week orientation to London followed by seven-week unpaid internship. Prerequisite: acceptance to undergraduate internship program in London.
409:113 Internship in Anthropology 0 s.h.
409:114 International Internship: Madrid 2 s.h. Ten-week program, includes orientation, Spanish language school, and eight-week unpaid internship. Prerequisite: acceptance to undergraduate internship program in Madrid.
409:122 Internship in Mathematics 0 s.h.
409:131 Internship in Women's Studies
0 s.h.

409:137 Internship in Dance
0 s.h.

409:145 Internship in Interdepartmental Studies
0 s.h.

409:153 Internship in Aging Studies
0 s.h.

409:159 Internship in Environmental Sciences
Prerequisite: cumulative g.p.a. of at least 2.50.
0 s.h.

409:169 Internship in Leisure Studies
0 s.h.

409:170 Internship in Public Health
Prerequisite: admission to the College of Public Health.
0 s.h.

409:171 Internship in Biostatistics
Prerequisite: admission to the College of Public Health.
0 s.h.

409:172 Internship in Community and Behavioral Health
Prerequisite: admission to the College of Public Health.
0 s.h.

409:173 Internship in Epidemiology
Prerequisite: admission to the College of Public Health.
0 s.h.

409:174 Internship in Health Mgmt & Policy
Prerequisite: admission to the College of Public Health.
0 s.h.

409:175 Internship in Occupational and Environmental Health
Prerequisite: admission to the College of Public Health.
0 s.h.

409:187 Internship in International Studies
0 s.h.

409:188 Internship in Performing Arts
0 s.h.

409:190 Washington Center Internship Program
Internship placements for students in all University of Iowa majors (typical placements include Congress, the White House, the Center for Strategic and International Studies, the U.S. Department of Commerce, the U.S. Department of Defense, the Environmental Protection Agency, CNN, C-SPAN, BET, MCI Center, the Smithsonian Institution, the National Institutes of Health, Amnesty International, the Children's Defense Fund, Mexican Cultural Institute Embassies, the U.S. Marshall's Office, federal courts, law offices, and the U.S. Secret Service); participation in Presidential Lecture Series and Congressional Breakfast Series. Full semester or summer session.
arr.

409:191 Washington Center Seminar
Combined classroom instruction, faculty-led discussions, and experiential work opportunities; usually offered in Washington, D.C., occasionally at other locations tied to an event (e.g., political convention); one or two weeks.
arr.

409:192 Internship in Statistics and Actuarial Science
0 s.h.

409:193 Internship in Accounting
Prerequisites: admission to Tippie College of Business and accounting major.
0 s.h.

409:194 Internship in Finance
Prerequisites: admission to Tippie College of Business and finance major.
0 s.h.

409:195 Internship in Marketing
Prerequisites: admission to Tippie College of Business and 06M:100.
0 s.h.

409:196 Internship in Economics
0 s.h.
Prerequisite: economics major.

**409:197 Internship in Management and Organizations**
Prerequisites: admission to Tippie College of Business and management and organizations major.

**409:198 Internship in Management Information Systems**
Prerequisites: admission to the Tippie College of Business and management sciences major.
The Center for Diversity & Enrichment offers the following programs for precollege students.

Iowa First Nations

Web site: http://cde.uiowa.edu/index.php/ifn-summer-program.html

The Iowa First Nations Comprehensive Enrichment Program was established to encourage Native Americans who are entering grade 9 or 11 and are interested in professional careers in the sciences, engineering, and related fields. The Iowa First Nations Program brings Native American students to The University of Iowa for a two-week residential summer program that focuses on biochemistry and life sciences and explores the relationship between science and Native American cultures. In addition to course work, students participate in varied social and recreational activities. For more information about Iowa First Nations, contact the Center for Diversity & Enrichment.

Life Science Summer Program


The Life Science Summer Program (LSSP) is an intensive, two-week summer program for high school students who are interested in biology but have not taken high school biology classes. Sponsored by the Center for Diversity & Enrichment, the program provides hands-on laboratory training and classroom instruction covering a wide range of topics in developmental biology. The curriculum also includes health-related issues and current events.

For more information, contact the Center for Diversity & Enrichment.

Center for Diversity & Enrichment Courses

402:002 Life Science Summer Program 0 s.h.

402:023 Iowa First Nations 0 s.h.
College Success Initiatives

The College Success Initiatives program is designed to enrich students' experiences at The University of Iowa. College Success Initiatives offers the following courses focused on helping first-year and entering students make a successful transition to the University: 407:001 The College Transition, a traditional first-year experience course; 407:011 The Transfer Transition, a transition course for transfer students; 407:007 Online at Iowa, a web-based course introducing students to electronic tools and resources at The University of Iowa; and 407:002 College Success Seminar, a course for first-year students who have been placed on academic probation.

College Success Initiatives is administered by the associate provost for undergraduate education. For more information about College Success Initiatives courses, contact the Academic Advising Center. Other programs designed especially for first-year students at Iowa include Courses in Common (contact the Academic Advising Center), First-Year Seminars (contact the College of Liberal Arts and Sciences), and Living-Learning Communities (contact the Office of the Provost).

College Success Initiatives Courses

407:001 The College Transition 2 s.h.
College culture, University of Iowa resources, refinement of study skills, test taking, identification of personal values, self-motivation, goal setting; taught in small sections with emphasis on classroom discussion. Prerequisite: entering first-year student standing.

407:002 College Success Seminar 1 s.h.
Skills, habits, and attitudes essential for college success; self-assessment, goal setting, problem solving, motivation, time management, study skills, preparing for and taking tests; campus resources, including the Pomerantz Career Center, University Counseling Service; emphasis on class participation and completion of assignments related to course topics. Prerequisite: selected students with first-year standing in the College of Liberal Arts and Sciences.

407:005 HSLC Seminar 1 s.h.

407:007 Online at Iowa 1 s.h.
Web-based introduction to electronic tools and resources at The University of Iowa; web sites, e-mail, databases; how to research courses, register for classes, and review grades; computer security; virtual campus tour.

407:011 The Transfer Transition 2 s.h.
University of Iowa resources, career and major selection, identification of personal values, self-motivation, goal setting, study and test-taking skills; small sections with classroom discussion. Prerequisite: entering transfer student standing.

407:015 Diversity Awareness: Discussion About Differences 1 s.h.
Multicultural and diversity awareness developed through group interaction, dialogues, and reflection on topics such as race, ethnicity, gender, sexual orientation, and socioeconomic status.

407:020 Teamwork Practicum 1-3 s.h.
Participation on a University committee, completion of associated activities; effective team membership skills; how complex organizations function.

407:025 Mindfulness: Being Here With It All 2 s.h.
Training in Mindfulness-Based Stress Reduction and application to dealing with life changes, such as the transition to University life; navigating daily life (academics, roommates, schedules), questions of meaning and purpose.

Training and/or service as a peer educator in the University's living-learning communities program. Prerequisite: selection as a Learning Community Peer Educator.
First-Year Programs

Director: Beth F. Ingram

First-Year Programs encompasses courses aimed at first-year students and provides special opportunities for students to interact with faculty and senior administrators.

First-Year Programs Courses

420:029 First-Year Seminar 1 s.h.
Introduction to the intellectual life of the University; opportunity to work closely with a faculty member or senior administrator; active participation that eases the transition to college-level learning.
Intercollegiate Athletic Participation

Students who are members of University of Iowa intercollegiate athletics teams and are certified to participate in their sport may register for 408:021 Intercollegiate Athletic Participation. Each section of the course represents a specific sports team; students register for the appropriate section. Registration requires approval from the director of athletic student services. Qualified students may repeat the course. Members of University of Iowa sport clubs are not eligible to enroll in 408:021 Intercollegiate Athletic Participation.

Intercollegiate Athletic Participation Courses

408:021 Intercollegiate Athletic Participation 1 s.h.
Iowa Biosciences Advantage

**Directors:** Sarah K. England (Molecular Physiology and Biophysics), Vincent G.J. Rodgers (Physics and Astronomy)
**Lecturer:** Jodi L. Linley
**Web site:** [http://ogei.grad.uiowa.edu/iba/](http://ogei.grad.uiowa.edu/iba/)

Iowa Biosciences Advantage (IBA) is a highly competitive undergraduate research and academic enrichment program funded by the National Institutes of Health. The program identifies academically talented undergraduate, underrepresented minority students who aspire to research careers and gives them first-rate training that facilitates entry into doctoral programs in biomedical, behavioral, and biophysical sciences.

Iowa Biosciences Advantage students have opportunities to work in research laboratories with faculty mentors during the course of their undergraduate careers. The program's faculty represents a broad range of disciplines in the basic and biomedical sciences. IBA students also benefit from specialized course work, career workshops, and academic advising for biomedical and bioscience careers.

Students selected for IBA must maintain good standing in academics and research. Good academic standing requires a g.p.a. of at least 3.00 and is evaluated at the end of each semester. Good research standing is determined by each student's research mentor. Students work with their mentors throughout the academic year and summer. They present their research in August at the Annual IBA Scholar Research Symposium.

**STUDENTS ACCEPTED FROM HIGH SCHOOL**

Students admitted to IBA from high school spend their first year at The University of Iowa establishing good academic standing and conducting laboratory rotations.

During fall semester, IBA students enroll in a special section of 407:001 The College Transition (2 s.h., graded satisfactory/unsatisfactory), which covers topics such as defining college culture, discovering University resources, refining study skills, taking tests, and setting goals.

During spring semester, IBA students enroll in two courses. They take 168:041 IBA Student Development Seminar (1 s.h.), an extension of subject matter introduced in The College Transition. They also take a special section of 168:047 IBA Research in Biomedical Science (0 s.h.) and complete two research rotations. The rotations, which are set up by IBA staff, introduce students to laboratory research at the University.

At the end of the first year, each student is evaluated for admission to the IBA Scholar Program. Students selected as IBA scholars remain on campus for the eight-week summer session. They earn wages for laboratory work with their research mentors, live in the IBA Summer Learning Community, and participate in IBA events.

**STUDENTS ACCEPTED FROM COLLEGE**

Applications also are accepted from current University of Iowa undergraduates majoring in the sciences as well as students transferring to Iowa as sophomores or juniors. Students accepted to IBA during their first, second, or third year of college join the appropriate class of IBA scholars. During their first semester of participation, new undergraduates complete lab rotations and establish good academic standing. They also enroll in 168:041 IBA Student Development Seminar. Once students are matched with a research mentor, they earn wages for their laboratory work during summer and the academic year.

**Admission**

Students apply to Iowa Biosciences Advantage during their senior year of high school or once they are undergraduate students.

Applicants must:
- have a strong interest in pursuing a research career;
- have a qualifying academic major;
- be in good academic standing;
- submit an IBA application, including short essays and a release for IBA to obtain the applicant's transcripts; and
- submit one letter of recommendation from a science or math instructor.

Admission requires an interview. Admission decisions are made throughout the year.

**Faculty**

Faculty members from the University's broad range of basic and biomedical science disciplines serve as teachers and mentors to IBA students. They represent many departments, including anatomy and cell biology, biochemistry, biology,
biomedical engineering, chemistry, integrative physiology, microbiology, molecular physiology and biophysics, neuroscience, and psychology.

**Iowa Biosciences Advantage Courses**

**168:039 Introduction to Laboratory Techniques** 2 s.h.
Exercises that teach basic laboratory techniques through experimentation with biological materials; preparation for conducting research in the mentor’s laboratory.

**168:041 IBA Student Development Seminar** 0-1 s.h.
Academic and professional development; presentations by faculty researchers, admissions representatives, or students in graduate bioscience programs; discussions about succeeding at the University; talks by professional educators on topics such as effective study skills.

**168:047 IBA Research in Biomedical Science** arr.
Registration in a section taught by the student's research mentor. Prerequisite: enrollment in IBA.
Iowa Lakeside Laboratory

Executive director: Peter J. van der Linden  
University of Iowa coordinator: Diana Horton (Biology)  
Iowa State University participating faculty: Bonnie S. Bowen (Ecology, Evolution, and Organismal Biology), Lee Burras (Agronomy)  
University of Iowa participating faculty: John F. Doershuk (Anthropology)  
University of Northern Iowa participating faculty: John R. Groves (Earth Science), Thomas Hockey (Earth Science), Lee S. Potter (Earth Science), Daryl D. Smith (Biology), De Anna Tibben (Earth Science)  
Web site: http://www.continuetolearn.uiowa.edu/lakesidelab/

Iowa Lakeside Laboratory is a field station run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa. Iowa Lakeside Laboratory courses can be taken for credit through all consortium member schools. Students should check with their advisors to determine whether Iowa Lakeside Laboratory courses can be used to satisfy requirements of their academic majors or minors, or college or university general education requirements.

The laboratory was established in 1909 for the conservation and study of the rich flora and fauna of northwest Iowa, especially the numerous lakes, wetlands, and prairies of the Iowa Great Lakes region. The campus is located on approximately 140 acres of restored prairie, wetland, and gallery forest along the west shore of West Okoboji Lake. Lakeside's mission is to provide undergraduate and graduate students an opportunity for hands-on experience in a variety of natural and human environments through its field-oriented summer courses, and to provide research facilities and support for graduate students and faculty members working on research projects in northwestern Iowa.

Each summer Iowa Lakeside Laboratory offers students a unique educational experience—small, full-immersion, field-oriented courses in the natural sciences (archaeology, ecology, environmental science, evolution, geology, hydrology, soils, taxonomy). Courses are taught at the undergraduate level (sophomore and junior) and the senior/graduate level. Most courses meet all day Monday through Friday, last four weeks, and are limited to eight to ten students. Students usually earn 1 s.h. for each week (40 hours) in class. One- and two-week courses also are available, including courses designed especially for teachers.

Weather permitting, students normally spend at least part of each day doing fieldwork, either as part of their class work or for individual or group projects.

Some courses are offered alternate summers; see http://www.continuetolearn.uiowa.edu/lakesidelab/ustudents/courses.html or the University of Iowa's summer course offerings on ISIS (Iowa Student Information Services) to learn which courses will be offered in a particular summer session.

Research projects by undergraduates, graduate students, and faculty members can be completed either on the Iowa Lakeside Laboratory campus or at many nearby natural areas. Undergraduate and graduate students are strongly encouraged to do independent projects at the laboratory, and graduate students are welcome to use Lakeside as a base for their thesis and dissertation research. Laboratory space and other facilities are available for long-term or short-term research projects.

Teaching and research facilities include eight laboratory buildings, a library, and a lecture hall. Living accommodations include cottages, motel-style units, and a large mess hall. All students are encouraged to stay at Lakeside while they are taking courses to derive full advantage of its educational, professional, and social life.

Registration

Students can enroll in Iowa Lakeside Laboratory courses only by submitting an Iowa Lakeside Laboratory Registration and Scholarship Form and the Lakeside housing form to the Iowa Lakeside Laboratory Administrative Office. Forms and information on registration and current courses are available on the Iowa Lakeside Laboratory web site.

Early registration is advisable. Because enrollment in Lakeside courses is limited, students should register before May 1 for the following summer session. Housing is limited at Lakeside. When students register for courses, they must either apply for housing or state that they plan to live off campus.

Financial Support

Iowa Lakeside Laboratory scholarships are available to undergraduates and graduate students. Scholarships cover basic room and board; in some cases, they help reduce the cost of tuition. For information about how to apply for Iowa Lakeside Laboratory scholarships, see the Iowa Lakeside Laboratory web site. For information about other scholarships, work-study, and loan programs, consult the Office of Student Financial Aid.

The University of Iowa provides Thomas H. Macbride Scholarships in Natural Science for qualified graduate students attending Lakeside. The scholarships cover Iowa Lakeside Laboratory tuition costs. Application deadline is April 1.
Iowa Lakeside Laboratory Courses

00L:005 Flora of the Iowa Lakes Region
2 s.h.

00L:010 Earth, Air, and Sky
Essentials of earth science, including astronomy, meteorology, geology, and paleontology; includes laboratory and fieldwork.
3 s.h.

00L:030 Natural History Workshop
A specific aspect of the upper Midwest's natural history, or techniques for studying natural history; amphibians and reptiles, birds and birding, nature photography, mushrooms and other fungi, Iowa's trees and forests, fish biology, prairies, common algae, common insects, aquatic plants, life in rivers, life in lakes, mosses and liverworts, natural history of Iowa Great Lakes region, field archaeology, scuba diving, astronomy, nature sketching; five-day, nontechnical introductions.
1-2 s.h.

00L:031 Ecology
Introduction to the principles of ecology at the population, community, ecosystem levels; field studies of local lakes, wetlands, and prairies used to examine factors that control distributions, interactions, and roles of plants and animals in native ecosystems.
4 s.h.

00L:040 Archaeology
Nature of cultural and environmental evidence in archaeology, how such evidence is used to model past human behavior and land use; emphasis on Iowa prehistory; basic reconnaissance surveying, excavation techniques.
4 s.h.

00L:043 Illustrating Nature--Sketching
Sketching plants, animals, terrain; visual communication, development of a personal style, integration of typographic and visual elements on a page.
2 s.h.

00L:044 Illustrating Nature--Photography
Beginning/intermediate technique and composition in color photography of natural areas, their plants and animals.
2 s.h.

00L:050 Undergraduate Internship
Placement with county conservation boards, camps, parks, and other agencies for experience as interpreters, rangers, technicians. Prerequisites: sophomore standing and consent of instructor.
1-5 s.h.

00L:064 Biology of Aquatic Plants
Field-oriented introduction to the taxonomy and ecology of aquatic plants in lakes, wetlands, rivers; individual or group projects. Offered summer sessions of odd years.
4 s.h.

00L:100 Techniques for Biology Teaching
Development and implementation of laboratory exercises suitable for inclusion in elementary, middle, high school, and community college biology and environmental courses; exercises built around common organisms and ecosystems in Iowa; animal biology, plant biology, fungi and lichens, aquatic ecology, prairie ecology, wetland ecology, limnology, animal behavior, insect ecology, biology of invertebrates, noninvasive use of living organisms, Project WET; field trips.
1-2 s.h.

00L:102 Plant-Animal Interactions
Introduction to ecology and co-evolution of plants and animals; emphasis on dispersal, pollination, plant-herbivore interactions; field and laboratory work, reading, discussion. Prerequisite: one biological science course.
4 s.h.

00L:103 Aquatic Ecology
Analysis of aquatic ecosystems; emphasis on basic ecological principles; ecological theories tested in the field; identification of common plants and animals. Prerequisites: ecology, chemistry, and physics courses.
4 s.h.

00L:105 Plant Taxonomy
Principles of classification and evolution of vascular plants; taxonomic tools and collection techniques; use of keys; field and laboratory studies emphasizing identification of local flowering plants, recognition of major plant families.
4 s.h.

00L:109 Freshwater Algae
4 s.h.
Structure and taxonomy of freshwater algae based on field material collected; emphasis on genus-level identifications; habitat visits to lakes, fens, streams, rivers; algal ecology.

**00L:113 Undergraduate Independent Study** 1-4 s.h.
Prerequisites: junior or senior standing and consent of instructor.

**00L:115 Field Mycology** 4 s.h.
Identification and classification of the common fungi; techniques for identification, preservation, and culture practiced with members of the various fungi groups.

**00L:117 Ecology and Systematics of Diatoms** 4 s.h.
Field and laboratory study of freshwater diatoms; techniques in collection, preparation, and identification of diatom samples; study of environmental factors affecting growth, distribution, taxonomic characters; project design and execution, including construction of reference and voucher collections; data organization and analysis.

**00L:119 Evolution** 4 s.h.
Mechanisms and patterns in microevolution, macroevolution; field exercises emphasizing studies of natural selection, adaptation, genetic variation, and population genetics of local plant, animal populations.

**00L:120 Freshwater Invertebrates** 4 s.h.
Field-oriented introduction to identification, life history, and ecology of common, free-living freshwater invertebrates of north-temperate lakes, rivers, wetlands; emphasis on invertebrates’ role in aquatic food chains and litter processing. Prerequisite: an ecology course.

**00L:121 Plant Ecology** 4 s.h.
Principles of plant population, community, and ecosystem ecology illustrated through studies of native vegetation in local prairies, wetlands, forests; group or individual projects.

**00L:122 Prairie Ecology** 4 s.h.
Basic patterns, underlying physical and biotic causes of regional and local distributions of North American prairie plants and animals; field and laboratory analysis and projects. Prerequisite: familiarity with basic principles of biology and ecology.

**00L:124 Wetland Ecology** 4 s.h.
Ecology, classification, creation, restoration, and management of wetlands; field studies on composition, structure, and function of local natural wetlands, restored prairie pothole wetlands; individual or group projects. Prerequisite: 00L:031.

**00L:126 Ornithology** 4 s.h.
Biology, ecology, and behavior of birds; emphasis on field studies of local avifauna; group projects with focus on techniques of population analysis and methodology for population studies.

**00L:127 Introduction to Insect Ecology** 4 s.h.
Insects; their diversity and life history; emphasis on ecology and behavior; field, laboratory study. Offered summer sessions of odd years.

**00L:128 Fish Ecology** 4 s.h.
Basic principles of fish interaction with biotic and abiotic environments; field methods, taxonomy, and biology of fish with emphasis on the fish fauna of northwestern Iowa.

**00L:129 Vertebrate Ecology and Evolution** 4 s.h.
Field and laboratory study of representative vertebrates of northwestern Iowa; observations and experimentation emphasize ecological histories by integrating concepts of functional morphology, behavioral ecology, evolutionary biology.

**00L:135 Aquatic Toxicology and Wetland Dynamics in Freshwater Systems** 2-4 s.h.
Fundamental knowledge and understanding of scientific concepts related to the physio-chemical and biological environment; problems and issues (global, national, regional, and local) of freshwater systems; how wetland restoration is used to ameliorate problems; basic tools used to assess aquatic toxicological problems. Prerequisites: one year of biology and one year of chemistry.
00L:140 Water Policy and Politics 1 s.h.
Historical, legal, economic, cultural, and political dimensions of water resources; public perception and enjoyment of this abundant and important natural resource; how public policy developed; private rights; differences between the previous appropriation system in the western U.S. and eastern riparian rights law; public rights regarding water for navigation, recreation, and environmental protection; water-related institutions such as suppliers of municipal water and irrigation water; interbasin transport of water.

00L:142 Watershed Hydrology and Surficial Processes 4 s.h.
Effects of geomorphology, soils, and land use on transport of water and materials (nutrients, contaminants) in watersheds; fieldwork emphasizing investigations of the Iowa Great Lakes watershed. Prerequisites: four courses in physical or biological sciences or engineering.

00L:144 Ecosystems of North America 2-4 s.h.
Extended field trip for study of an ecosystem type (e.g., prairie, coastal wetland, forest, alpine, coral reef) or the ecosystems of a specific region (e.g., Rocky Mountains, Gulf Coast, Appalachian Mountains, deserts of the Southwest, Central America); pre-trip orientation, post-trip review and synthesis. Field trip fee. Prerequisites: an ecology course and consent of instructor.

00L:151 Analysis of Environmental Data 2 s.h.
Theory and application of statistical techniques for analysis of ecological and paleoecological data.

00L:156 Advanced Field Ornithology 2 s.h.
Field study of birds of the upper Midwest; extended field trip to Minnesota, Wisconsin; individual or group project. Field trip fee. Corequisite: 00L:126.

00L:160 Restoration Ecology 4 s.h.
Ecological principles for restoration of native ecosystems; establishment (site preparation, selection of seed mixes, planting techniques) and management (fire, mowing, weed control) of native vegetation; evaluation of restorations; emphasis on prairie restoration, wetland vegetation. Prerequisite: an ecology course.

00L:161 Introduction to GIS 4 s.h.
Descriptive and predictive geographic information system (GIS) modeling techniques, spatial statistics, map algebra; application of GIS modeling techniques to environmental planning and resource management.

00L:163 Conservation Biology 4 s.h.
Population- and community-level examination of factors influencing viability of plant and animal populations from demographic and genetic perspectives; assessment of biodiversity; design, management of preserves. Offered summer sessions of odd years. Prerequisite: 00L:031.

00L:165 Behavioral Ecology 4 s.h.
Ecological and evolutionary theories of animal behavior examined through field studies of animal coloniality, courtship, territoriality, predator defense, habitat selection, foraging, mating systems, parental care. Offered summer sessions of even years. Prerequisites: two biology courses.

00L:166 Amphibians and Reptiles 4 s.h.
Ecology, behavior, and conservation biology of amphibians and reptiles, with focus on their anatomy, morphology; temperature and water regulation, locomotion, life history, reproduction, population and community ecology, conservation. Offered summer sessions of even years. Prerequisites: two biology courses.

00L:175 Soil Genesis and Landscape Relationships 4 s.h.
Relationships between soil formation, geomorphology, environment; soil description, classification, geography, mapping, interpretation for land use. Offered summer sessions of even years. Prerequisite: 00L:142.

00L:199 Undergraduate Research 1-4 s.h.
Prerequisites: junior or senior standing and consent of instructor.

00L:210 Global Climate Change: Causes, Connections, and Cures 2 s.h.
Underlying causes of global climate change, both natural and human; web of interrelated links affecting the physical and living world, including human society; cause-and-effect relationships and interventions that may reduce negative consequences; for teachers of grades 7-12 and students enrolled in teacher education programs for those grades. Prerequisite: bachelor's degree.

**00L:213 Graduate Independent Study**
Prerequisite: consent of instructor.

**00L:217 Ecology and Systematics of Diatoms**
4 s.h.

**00L:225 Physical Limnology**
Mechanisms of physical transport of heat and contaminants in lakes; temperature cycle and stratification; disturbances to seasonal temperature structure, including the diurnal mixed layer, waves, upwelling, differential heating; turbulence, mixing, transport; field measurements of physical processes, computer models of transport. Prerequisite: consent of instructor.

**00L:240 Natural History Workshop**
An aspect of the upper Midwest's natural history, or techniques for studying natural history. Prerequisite: consent of instructor.

**00L:250 Graduate Internship**
Experience as interpreters, rangers, technicians, and teachers through placement with county conservation boards, camps, parks, schools, other agencies. Prerequisite: consent of instructor.

**00L:299 Research**
1-4 s.h.
Iowa Young Writers' Studio

Director: Stephen Lovely
Web site: http://www.uiowa.edu/youngwriters

The Iowa Young Writers' Studio is a two-week summer residential program for high school students who love to write. Students build a community of peers while working with experienced writing teachers, primarily students and graduates of the University's M.F.A. program in creative writing.

The studio offers three courses of study: poetry, fiction, and creative writing (a mix of poetry, fiction, and creative nonfiction). Each course consists of a seminar and a workshop. In seminars, students read literature by established writers. In workshops they share their own writing, get feedback from their classmates and teacher, and discuss issues of narrative and form.

The studio offers two two-week sessions: one in June and one in July.

Young writers who have completed grade 10, 11, or 12 are eligible to attend the studio. Application materials include an application form, a creative writing sample, a statement of purpose, a high school transcript, and a letter of recommendation from an English teacher or another instructor familiar with the applicant's writing. For complete application information, contact the Iowa Young Writers' Studio or visit its web site.

Iowa Young Writers' Studio Courses

406:001 Iowa Young Writers' Studio 0 s.h.
Lifetime Leisure Skills

Director: Robert DuBay
Web site: http://www.recserv.uiowa.edu/programs/TTE/classes.htm

Lifetime Leisure Skills courses are open to University of Iowa undergraduate and graduate students. Undergraduates in the College of Liberal Arts and Sciences may count credit earned in Lifetime Leisure Skills toward the 120 s.h. required for a bachelor's degree. Students should consult with their academic advisors.

Lifetime Leisure Skills Courses

410:041 Scuba
Basics of scuba diving. Taught in Field House pool. Six weeks.

410:042 Introduction to Rock Climbing
Basics of rock climbing. Taught at Pictured Rocks County Park. Two days.

410:043 Bicycle Touring
Basics of bicycle touring. Taught on Johnson County area roads.

410:044 Mountain Bicycling
Basics of mountain bicycling. Taught on Sugar Bottom recreation trail system.

410:045 Leadership in the Outdoors
Leadership theories, group dynamics, permits, outdoor leadership skills; experience as leader for a day during a weeklong wilderness field trip.

410:046 Tae Kwon Do
Basics of Tae Kwon Do. Eight weeks.

410:047 Kick Boxing
Basics of kick boxing. Eight weeks.

410:048 Canoeing
Basics of canoeing. Taught at Macbride Nature Recreation Area. Two days.

410:049 White-Water Kayaking
Basics of white-water kayaking. Taught in Field House pool, rivers in Wisconsin, Missouri.

410:050 White-Water Canoeing
Basics of white-water canoeing. Taught on rivers in Wisconsin, Missouri.

410:051 Marathon Training and Racing
Multiweek training program culminating in the Midwest; for students who run 30-40 miles per week.

410:052 Intermediate Cross-Country Skiing
Skate skiing in northern Wisconsin. Prerequisite: 410:075.

410:053 River Canoeing

410:054 Dog Sledding
Basics of dog sledding and winter camping.

410:055 Intermediate Rock Climbing
Belaying, anchor placement. Prerequisite: 410:042.

410:056 Hiking
Basics of hiking. Taught at Governor Dodge or Devil's Lake State Parks in Wisconsin.

410:057 Backcountry Skiing and Snowshoeing
Basics of backcountry winter travel and camping.

410:058 Basic Self-Defense
Basics of self-defense. 1 s.h.

410:059 Intermediate Tae Kwon Do
Development of knowledge and skills learned in beginning Tae Kwon Do. Prerequisite: 410:046. 1 s.h.

410:060 Ballroom Dancing
Basics of ballroom dancing. 1 s.h.

410:062 Trail Running
Training, clothing, equipment, nutrition. 1 s.h.

410:063 Introduction to Nature Photography
Basics of outdoor photography; no darkroom requirement. Taught at Macbride Nature Recreation Area. 1 s.h.

410:064 Basic Orienteering
Basics of orienteering, including map and compass skills. Taught at Macbride Nature Recreation Area. 1 s.h.

410:065 Low-Impact Camping
Basics of low-impact camping; one overnight camping experience. Taught at Macbride Nature Recreation Area. 1 s.h.

410:066 Exploring the Natural Wonders of Iowa
History of the Loess Hills area of western Iowa or Yellow River Forest of northeastern Iowa; includes a weekend of hiking and camping. 1 s.h.

410:067 Team Building Challenge Course
How to work in a group setting and be responsible group members. 1 s.h.

410:068 Wilderness Appreciation
Basics of wilderness appreciation; one overnight camping experience. Taught at Macbride Nature Recreation Area. 1 s.h.

410:069 Basic Snowshoeing
Basics of snowshoeing. Taught on trails in Wisconsin. 1 s.h.

410:070 Intermediate Bicycle Touring
Bicycling on roads and trails in Wisconsin; focus on bike touring skills. Prerequisite: 410:043. 1 s.h.

410:071 Advanced Open Water Scuba
Participation in five scuba diving specialty activities. Prerequisites: 410:041 and certification as open water scuba diver. 1 s.h.

410:072 Basic Sea Kayaking
Basics of sea kayaking using solo and tandem boats. Taught at Lake Macbride. 1 s.h.

410:073 Winter Camping
Basics of winter camping; snow shelters, hydration, meal preparation, clothing needs, snowshoe/ski travel with sleds. 1 s.h.

410:074 Intermediate Mountain Bicycling
Mountain bicycling knowledge and skill developed on intermediate-level trails; on-trail maintenance. Prerequisite: 410:044. 1 s.h.

410:075 Basic Cross-Country Skiing
Basics of cross-country skiing in northern Wisconsin. 1 s.h.

410:076 Mountain Bicycling in Moab
Advanced mountain bicycling techniques. Taught near Moab, Utah. Prerequisite: 410:044 or consent of instructor. 1 s.h.

410:077 Backpacking
Remote backcountry experience in the Grand Canyon region; minimum-impact camping; may be strenuous. 1 s.h.
410:078 Ballroom Dancing II--Nightclub Series
Salsa, the Hustle, Nightclub Two-Step, Argentine tango, Lindy Hop.

410:079 Ballroom Dancing III--Rhythm and Smooth
Bolero, mambo, samba, waltz, Viennese waltz.

410:080 Challenge Course Facilitation
How to lead groups through a low- and high-elements challenge course; sequencing of events, processing and
debriefing techniques, front-loading games and initiatives, introducing games and initiatives; risk management issues
in conducting challenge course activities; history of challenge courses.

410:081 Hut-to-Hut Skiing
Cross-country skiing in Colorado's 10th Mountain Hut System.

410:082 Introduction to Bouldering
Basic skills and technique for bouldering with a partner. Taught at Horse Pens 40 in Alabama, and Rocktown in
Georgia.

410:083 Tandem Biking
How to ride a tandem bicycle with a partner; traffic principles for bike operation, safety for road operations, safe and
comfortable tandem bike operations; equipment and accessories for tandem bikes.

410:084 Late Night Outdoor Recreation
Nighttime outdoor activities such as moonlight kayaking and canoeing, night hiking, orienteering, bouldering.

410:085 Bicycle Racing Techniques
Basic skills and techniques of bicycle racing.

410:086 Stretch Strength Relaxation (RelaXercise)
Thorough exercise; strength, flexibility, full-body breathing techniques, relaxation methods for stress reduction and
body-mind integration.

410:087 Modern Dance for Fitness
Basic working knowledge of modern dance; introduction to modern dance styles, skills, physical art, and discipline;
focus on movement, dance techniques and skill, performance, creative experience.

410:088 Salsa Dancing
Fundamentals of Latin/Salsa dancing; musical rhythms, cultural history, postures, technique, basic movements;
techniques for developing strength, stamina, balance, poise, and partner dancing skills; gender interaction and
traditional social behaviors in salsa's cultural context.

410:089 Service Learning
Service learning project in an urban or wilderness setting; learn about local community, environment; projects depend
on location, season.

410:090 Rock Climbing Anchor Systems
Development of basic skills for climbing anchors; understanding setting top-rope anchors; topics include the use of
bolts, trees, and passive and mechanical chocks for anchor setting; equalization of anchors; basic knots for rope,
webbing, and cordelettes; basic understanding of the structural integrity and frictional forces important to anchor
setting.

410:091 Lifeguarding
American Red Cross lifeguard training through classroom learning, hands-on practice; surveillance skills for preventing
and recognizing injuries; land and water rescue skills; first-aid training, professional rescuer CPR; professional
lifeguard responsibilities (e.g., interacting with the public, addressing uncooperative persons); certification in
lifeguarding, first aid, professional rescuer CPR, AED.

410:092 Bicycling Southern States
Ride routes and trails between Memphis, TN and Vicksburg, MS; see everything from Graceland to cotton fields by
Ride routes and trails between Memphis, TN and Vicksburg, MS; see everything from Graceland to cotton fields by bicycle; vehicle supported adventure, camp while exploring the Southern states.

410:093 Intermediate Sea Kayaking 1 s.h.
Experience paddling in the beautiful blue waters of Lake Powell, exploring remote hidden side canyons, enjoying the stunning landscape, camping on secluded beaches under the star filled sky; learn skills needed to be a safe and efficient sea kayak adventurer, including transportation of boats, entering and exiting the kayak in different conditions, paddle strokes, and rescue techniques; learn what equipment to bring on a sea kayak adventure and how to effectively pack boats while traveling and camping around Lake Powell.

410:094 Land Navigation 1 s.h.
Travel to the Southwest and learn navigation skills with map and compass; topics include declination, bearings, map reading and recognizing land features on topographical map; camping and backpacking to multiple campsites.

410:095 Movement Analysis and Relaxation Techniques for Fitness 1 s.h.
Intensive workshop about connections: body to mind, breathing to efficient strengthening and stretching, stability to mobility, exertion to recuperation, function to expression; objectively observe, record, analyze, and understand student's own movement and that of classmates to bring positive change to movement habits and behavior which block energy and create unneeded stress, inhibit full movement ability and not allow for optimal, desired performance; mindful, efficient, articulate movement.
The Military Science Program administers Iowa Army ROTC. It gives students who wish to serve on active or reserve status in the U.S. Army the opportunity to earn commissions as army officers. It also administers merit scholarships from the United States government to qualified students.

Although the Military Science Program does not offer degrees, its courses provide education in the military's role and instruction in leadership and management. The program’s courses are an essential part of the Iowa ROTC program, which competes annually in national leadership assessments.

Military Science courses are open to all students. Course credit that counts toward graduation varies by college. Students in the College of Liberal Arts and Sciences may count up to 20 s.h. toward graduation.

### Programs

#### Basic Course

The ROTC basic course is designed primarily for first- and second-year students. It provides the fundamentals of leadership and management and introduces the roles of the military as influenced by national and foreign policy. Students incur no obligation to the military for participation in the basic course.

The following courses satisfy the basic course requirement. Some of these courses are prerequisites to others, so students must be careful to take courses in the correct order. Courses 023:101 Leadership and Personal Development MSL101 and 023:102 Introduction to Tactical Leadership MSL102 are prerequisite to 023:103 Innovative Team Leadership MSL201; courses 023:101 Leadership and Personal Development MSL101, 023:102 Introduction to Tactical Leadership MSL102, and 023:103 Innovative Team Leadership MSL201 are prerequisite to 023:104 Foundations of Tactical Leadership MSL202.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>023:101</td>
<td>Leadership and Personal Development MSL101</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>023:102</td>
<td>Introduction to Tactical Leadership MSL102</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>023:103</td>
<td>Innovative Team Leadership MSL201</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>023:104</td>
<td>Foundations of Tactical Leadership MSL202</td>
<td>2 s.h.</td>
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</tbody>
</table>

The basic course requirements may be taken over a one- or two-year period or during a four-week paid summer camp, the Leader's Training Course (LTC), at Fort Knox, Kentucky. Students with prior military training normally are exempt from the basic course requirements.

#### Advanced Course

The ROTC advanced course is open to any student who meets the prerequisites, but is designed primarily for cadets who wish to pursue a commission as a lieutenant in the U.S. Army upon graduation. It is open to both undergraduate and graduate students. Most cadets in the advanced course incur an obligation to the military that can be satisfied in the Active Army, Army Reserve, or Army National Guard.

To enter the advanced course, students must satisfy the basic course requirements, earn at least 54 s.h., and have a cumulative g.p.a. of at least 2.00. In order to become U.S. Army officers, cadets must complete the Leadership Development and Assessment course (LDAC), a five-week session held at Fort Lewis, Washington. Cadets normally attend LDAC during the summer between their third and fourth years. With the military science professor's permission, cadets may delay LDAC until the summer after their final ROTC class.

A tax-free monthly stipend is provided to cadets who enter a contractual agreement with ROTC to serve in the armed forces. Additional financial assistance may be provided through scholarships.

The following courses are the academic requirements for completion of the advanced course. Some of these courses have prerequisites and corequisites, so students must be careful to take courses in the correct order. Prerequisites and corequisites for each course are listed with course descriptions; see “Courses” at the end of this section.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>023:090</td>
<td>Leadership Laboratory</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>023:095</td>
<td>Advanced Military Fitness Training</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>023:105</td>
<td>Adaptive Tactical Leadership MSL301</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>023:106</td>
<td>Leadership in Changing Environments MSL302</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>023:107</td>
<td>Developing Adaptive Leaders MSL401</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
Additional Course Work

Cadets whose aim is to become officers must satisfy a Professional Military Education (PME) requirement. They must complete at least one course in military history from the following list. This course may be the same as one used to complete the College of Liberal Arts and Sciences General Education Program. Cadets may use other courses to meet the requirement, with the military science professor’s approval.

- 016:011 Issues in Human History: The Vietnam War in Historical Perspective 3 s.h.
- 016:014 Issues in Human History: Europe’s Expansion Overseas 3 s.h.
- 16A:153 U.S.A. in a World at War 1931-1945 3 s.h.
- 16A:162 American Revolutionary Period 1740-1789 3 s.h.
- 16A:166 The Progressive Era in America 3 s.h.
- 16A:168 The Contemporary U.S. 1940-Present 3 s.h.

Financial Aid

Military Science offers two-, three-, and four-year ROTC scholarships for students who enter the ROTC program. These scholarships pay tuition at The University of Iowa, an allotment for books and supplies each semester, most mandatory educational fees, and a tax-free monthly stipend during the academic year. Scholarships also are available for nursing students who wish to become Army nurses.

Military Science Courses

- **023:090 Leadership Laboratory** 0 s.h.
  Hands-on training in basic soldier skills, such as customs and courtesies, drill and ceremony, first aid, weapons employment, troop movement techniques; leadership training for U.S. army officership. Offered fall and spring semesters.

- **023:095 Advanced Military Fitness Training** 1 s.h.
  Aerobics and running, muscular strength and endurance, flexibility, and nutrition through exercise and classroom instruction; how to evaluate and measure fitness improvement; developed around Army physical fitness training program. Offered fall and spring semesters.

- **023:101 Leadership and Personal Development MSL101** 1 s.h.
  Introduction to the personal challenges and competencies critical for effective leadership; how skills such as critical thinking, goal setting, time management, physical fitness, and stress management relate to leadership, officership, and the army as a profession; dimensions of army leadership; understanding of the ROTC program, its purpose in the army, its advantages for students. Offered fall semesters.

- **023:102 Introduction to Tactical Leadership MSL102** 1 s.h.
  Leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback, using effective writing skills; leadership values, attributes, skills, and actions explored through hands-on, interactive exercises; cadre role models, development of strong relationships among students through common experience, practical interaction. Offered spring semesters.

- **023:103 Innovative Team Leadership MSL201** 2 s.h.
  Dimensions of creative, innovative tactical leadership strategies and styles explored through team dynamics and historical leadership theories (trait and behavior) central to the Army leadership framework; personal motivation and team building through planning, executing, and assessing team exercises and participating in leadership labs; continued development of leadership values and attributes through understanding army rank, structure, duties, basic aspects of land navigation and squad tactics; case studies on soldier’s creed and warrior ethos in the contemporary operating environment. Offered fall semesters. Prerequisites: 023:101 and 023:102, or consent of instructor.

- **023:104 Foundations of Tactical Leadership MSL202** 2 s.h.
Challenges of leading tactical teams in the complex contemporary operating environment; dimensions of terrain analysis, patrolling, operation orders; theoretical basis of the army leadership framework, dynamics of adaptive leadership in the context of military operations; self-assessment of cadet leadership styles, practice in communication and team building skills; case studies on importance and practice of teamwork and tactics in real-world scenarios. Offered spring semesters. Prerequisites: 023:101, 023:102, and 023:103; or consent of instructor.

023:105 Adaptive Tactical Leadership MSL301  
Study, practice, and evaluation of adaptive leadership skills in challenging scenarios related to squad tactical operations; feedback on cadets' leadership attributes and actions, continued development of leadership and critical thinking abilities; development of tactical leadership abilities in preparation for Leadership Development and Assessment Course (LDAC). Offered fall semesters. Prerequisites: 023:101, 023:102, 023:103, and 023:104; or completion of army basic training or Leader's Training Course. Corequisites: 023:090 and 023:095.

023:106 Leadership in Changing Environments MSL302  
Development of cadet awareness and tactical leadership to platoon level, through increasingly intense situational leadership challenges; experience reviewing combat, stability, and support operations, conducting military briefings, developing proficiency in garrison operation orders; focus on exploring, evaluating, and developing skills in decision making, persuasion, and motivation of team members in a contemporary operating environment; preparation for summer Leader Development Assessment Course. Offered spring semesters. Prerequisites: 023:101, 023:102, 023:103, and 023:104; or completion of army basic training or Leader's Training Course; and 023:105. Corequisites: 023:090 and 023:095.

023:107 Developing Adaptive Leaders MSL401  
Development of proficiency in planning, executing, and assessing complex operations, functioning as member of a staff, providing performance feedback to subordinates; experience assessing risk, making ethical decisions, leading fellow cadets; military justice and personnel processes in preparation for officership; identification of key staff responsibilities, coordination of staff roles, use of situational opportunities to teach, train, and develop subordinates. Offered fall semesters. Prerequisites: 023:105 and 023:106. Corequisites: 023:090 and 023:095.

023:108 Leadership in a Complex World MSL402  
Leadership dynamics in complex military operations of the contemporary operating environment; differences in customs and courtesies, military law, principles of war, rules of engagement in the face of international terrorism; interaction with nongovernmental organizations, civilians on the battlefield, host nation support; ethical and practical demands on army commissioned officers; preparation for first unit assignment through case studies, scenarios, exercises. Offered spring semesters. Prerequisites: 023:105, 023:106, and 023:107. Corequisites: 023:090 and 023:095.

023:121 Readings in Contemporary Military Issues  
Preparation of book reviews from a reading list provided by the instructor, with topics ranging from historical battles and campaigns to global impact of U.S. political policies; or writing of an operations order relating to an ROTC event or similar project of historical significance (work in conjunction with instructor). Prerequisites: 023:101, 023:102, 023:103, and 023:104; or completion of army basic training or Leader's Training Course.
Museum Studies

Director: Pamela White
Adjunct assistant professors: Tiffany Adrain, Jennie Bailey, Sean Ulmer
Undergraduate nondegree program: Certificate in Museum Studies
Web site: http://www.continuetolearn.uiowa.edu/museumstudies/

The University of Iowa has maintained a long museum studies tradition, having offered courses in the subject continuously since 1910. Iowa's museum studies students have gone on to become directors, curators, educators, and exhibit specialists in museums throughout the country.

Museums are interdisciplinary institutions that embrace every aspect of cultural study, and the study of museums mirrors that multiplicity. Many University of Iowa departments and programs offer courses relevant to museum studies, for example, American studies, anthropology (including archaeology), art history, studio art, biology, business, communication studies, elementary and secondary education, English, foreign languages, history, library and information sciences, and leisure studies.

Museum facilities at the University of Iowa include the Museum of Natural History, the Museum of Art and the Old Capitol Museum.

The Museum Studies Program offers an undergraduate certificate. Its courses are open to all University of Iowa students; they attract individuals who have a general interest in the arts, humanities, or sciences as well as those who would like to learn more about how museums work.

Certificate

The Certificate in Museum Studies requires 18 s.h. It is offered by University College and administered by the Division of Continuing Education.

The undergraduate certificate provides a broad foundation of knowledge increasingly desired in the museum field. Museum studies courses introduce students to the spectrum of museum endeavors, from organization and mission planning to institutional histories and current developments in the field. Most courses developed by the program offer hands-on experience in exhibition planning and design, collection management, educational programming, community development, and administration.

A major in one of the natural sciences (e.g., biology, geoscience), anthropology, science education, art history, American studies, or history is recommended for students preparing for museum careers; see the appropriate College of Liberal Arts and Sciences department sections of the Catalog for information about those majors. CLAS students also may use the individualized plan of study track in the interdepartmental studies major to create a museum studies concentration relevant to their academic and professional interests.

Requirements for the Certificate in Museum Studies include 15 s.h. of foundation course work and an internship (3 s.h.), for a total of 18 s.h.

All students take 024:102 Introduction to Museology (3 s.h.), which provides a historical overview of museum development and function while introducing students to issues such as museum governance and financing, ethics and law, collection management, exhibition and educational programming, interpretation, and audience research. Ideally, this is the first course students take in the certificate program; it is a prerequisite for some of the program's more advanced courses.

In addition to the introductory course, students select three courses (minimum of 9 s.h.), typically one from each of three of the following categories, and one additional course (minimum of 3 s.h.) from any of the categories:

Museum administration and management
History, theory, and culture
Exhibition development and public education
Collection management and care

After completing the 15 s.h. of foundation course work described above, students complete an internship (minimum of 3 s.h.). The director of the museum studies certificate program works closely with students and affiliated faculty members to ensure that internships provide students with the instruction and experience they need.

Students may count a maximum of 6 s.h. completed for another certificate, major, or minor in the College of Liberal Arts and Sciences toward the Certificate in Museum Studies; students must first request permission from the director of the museum studies certificate to use courses that are not included in the program, and the proposed course content and requirements must fit into one of the program's defined areas.

Students interested in the museum studies certificate are encouraged to contact the director of the Museum Studies
## Museum Studies Courses

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>024:102</td>
<td>Introduction to Museology</td>
<td>3 s.h.</td>
<td>Overview of museum history, function, philosophy, collection and curatorial practices, governance and funding issues, exhibition evaluation, audience studies; American cultural institutions. GE: Humanities. Same as 07S:112, 097:115, 113:103.</td>
</tr>
<tr>
<td>024:104</td>
<td>Exhibition Planning</td>
<td>3 s.h.</td>
<td>Preliminary work for and process of developing museum exhibitions; history of exhibit design, evaluation, budgets, teams and team member roles, working with community and special interest groups, methods of production and display; students research a topic, choose artifacts and images, and create a narrative and exhibit script. Prerequisite: 024:102 or consent of instructor.</td>
</tr>
<tr>
<td>024:105</td>
<td>Designing History Exhibits</td>
<td>3 s.h.</td>
<td>Process of developing exhibitions by museum staff and professional design services; designer's role; aspects of materials used in exhibit fabrication; lighting issues, design elements, organization and development of exhibit script, label and graphic production; creation of advertising and promotional material, and fit of such material with final exhibit product; produce documents to develop an exhibit at a nearby museum using narrative and script created in 024:104. Prerequisites: 024:102 and 024:104, or consent of instructor.</td>
</tr>
<tr>
<td>024:115</td>
<td>Museum Literacy and Historical Memory</td>
<td>3 s.h.</td>
<td>Concepts and methods for understanding the role of museums in shaping knowledge and collective memory of history; institutionally based exhibits and collections, historical markers and public monuments, public holidays and events, media and artistic works that interpret the past; how events, people, and civic ambitions are memorialized and how memories of them are shaped; appearance of museums and related practices in the non-Western world after 1850. Prerequisite: honors standing or consent of instructor. Same as 016:120.</td>
</tr>
<tr>
<td>024:119</td>
<td>Writing for Interdisciplinary Audiences</td>
<td>3 s.h.</td>
<td>English majors may apply this course to the following area and/or period requirement. PERIOD: 20th- and/or 21st-Century Literature. Same as 08N:119, 153:119, 154:119.</td>
</tr>
<tr>
<td>024:120</td>
<td>Collection Care and Management</td>
<td>3 s.h.</td>
<td>How a museum's management policy relates to its administrative, legal, and ethical obligations to its collections; acquisitions, deaccessions, collection use, data standards, storage environment, health, safety, documentation. Same as 012:120.</td>
</tr>
<tr>
<td>024:121</td>
<td>Power of Placement</td>
<td>3 s.h.</td>
<td>How placement of artworks in a setting and their relationship to each other affect the way in which viewers understand the works; influence of curator's choice of placement, sequence, height, wall color, and so forth; varied settings, with focus on display issues in art museums; includes gallery and museum experiences. Prerequisite: 024:102.</td>
</tr>
<tr>
<td>024:140</td>
<td>Advanced Collection Care and Management</td>
<td>3 s.h.</td>
<td>Builds on 024:120; types of museum objects and materials, their care and management; care, storage, and use of paper, books, photographs, works of art, electronic information media, textiles, furniture, archaeological artifacts, natural history specimens, archives; digitization projects, integrated pest management, risk assessment, museum security, museum construction and renovation, grant writing; for students planning museum careers or for professions that require care of collections. Prerequisite: 012:120 or 024:120 or consent of instructor. Same as 012:160.</td>
</tr>
<tr>
<td>024:147</td>
<td>Nonprofit Organizational Effectiveness I</td>
<td>3 s.h.</td>
<td>Operational and financing aspects of nonprofit management; mission and governance of organization; strategic planning for effective management, including finance, budget, income generation, fund-raising. Same as 032:127, 042:157, 06J:147, 06T:144, 096:168.</td>
</tr>
<tr>
<td>024:148</td>
<td>Nonprofit Organizational Effectiveness II</td>
<td>3 s.h.</td>
<td>Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Same as 032:128, 042:158, 06J:148, 096:169.</td>
</tr>
</tbody>
</table>
024:150 Directed Studies and Projects
Advanced readings in historical development, educational philosophy, programs, operations of museums; individual projects coordinated with programs, exhibits, or collections of campus and area museums. Prerequisite: 024:102 or 024:104 or 024:120.

024:160 Introduction to Archives
1 s.h.
Purpose and function of archival repositories (as compared with libraries); professional responsibilities of archivists; theoretical basis of currently accepted practices; collection solicitation and development; appraisal of records and manuscripts; processing, or arrangement and description, of collections; archival preservation and conservation, including digital preservation; reference services; outreach efforts; current issues, including electronic records, privacy and copyright.

024:161 Art, Law, and Ethics
3 s.h.
How law and ethics apply to individuals and institutions concerned with the visual arts. Same as 01H:182, 033:175, 091:192.

024:162 The Art Museum: Theory and Practice
3 s.h.
Same as 01H:181.

024:170 Grant Writing in the Arts
3 s.h.
Same as 01P:185.

024:180 Museum Internship
arr.
Working experience in functions, departments, programs of the sponsoring museum; relation to museum's overall mission and museum field in general.

024:247 Nonprofit Organizational Effectiveness I
3 s.h.

024:248 Nonprofit Organizational Effectiveness II
3 s.h.
Qualities for leadership of nonprofit organizations, including relationships with staff and volunteers; relationship of nonprofit and outside world; marketing, public relations, advocacy strategies for nonprofits. Prerequisite: (for 091:322) 091:320 or consent of instructor. Prerequisite: (for 174:248) 06J:247 or 024:247 or 174:247. Same as 021:265, 028:258, 032:228, 042:248, 06J:248, 091:322, 174:248.
Nonprofit organizations play vital roles in our communities and contribute to our quality of life. Nonprofit organizations have unique management, funding, and finance issues that require specialized training. The Certificate in Nonprofit Management is designed to help staff members, board members, and volunteers develop the business and leadership skills necessary for building a successful nonprofit organization. The program provides a balance of academic principles and real-world experience as well as a fundamental understanding of how nonprofit organizations participate in building communities.

Certificate courses cover a wide range of topics and issues, such as community and government partnerships, organizational leadership, planning, human resources, financial accountability, grant writing, and web site creation and maintenance.

Courses are offered primarily on the World Wide Web.

The certificate is available to undergraduate students. Bachelor of Applied Studies and Bachelor of Liberal Studies students may incorporate certificate courses into their degree programs.

The program is presented by the Division of Continuing Education and the Larned A. Waterman Iowa Nonprofit Resource Center, in collaboration with University College.

Certificate

The Certificate in Nonprofit Management requires 18 s.h. Students must complete the following course work. They should take 06J:147 Nonprofit Organizational Effectiveness I, 06J:148 Nonprofit Organizational Effectiveness II, and 06T:120 Entrepreneurship and Innovation before enrolling in the remaining four courses.

- **06J:147 Nonprofit Organizational Effectiveness I** 3 s.h.
- **06J:148 Nonprofit Organizational Effectiveness II** 3 s.h.
- **06T:120 Entrepreneurship and Innovation** 3 s.h.
- **01P:185/024:170 Grant Writing in the Arts** 3 s.h.
- **07E:181 ePortfolio Production** 1-2 s.h.
- **042:204 Human Services Administration** 2 s.h.
- **036:019 Organizational Leadership** 2-3 s.h.
- or
- **188:109 Introduction to Arts Management** 3 s.h.
Orientation Training

Director: Andrew Cinoman
Web site: http://www.uiowa.edu/admissions/undergrad/orientation/

The University of Iowa holds orientation programs, presented by staff members of Orientation Services (Office of Admissions), for all incoming undergraduates. Parents and guardians are invited to attend separate but concurrent programs.

The Orientation Training Program offers the following courses for student employees who assist the Orientation Services professional staff in presenting orientation programs. Student advisors are required to take 412:077 Orientation Services Student Advisor Training. Parent program assistants are required to take 412:078 Orientation Services Parent Training.

Orientation Services Courses

412:077 Orientation Services Student Advisor Training 2 s.h.
Preparation for the role of student advisor in the Office of Orientation Services; knowledge of academic requirements, policies, and procedures at The University of Iowa; development of leadership, group facilitation, presentation, and academic advising skills. Prerequisite: consent of instructor.

412:078 Orientation Services Parent Training 2 s.h.
Preparation for the role of parent program assistant in the Office of Orientation Services; understanding the needs of parents who attend orientation programs; enhancement of communication, problem solving, and conflict management skills; knowledge of resource units on campus. Prerequisite: consent of instructor.
Patient Care Practicum

**Director:** Beth F. Ingram (Economics)

The Patient Care Practicum prepares students for work and/or internships at University of Iowa Hospitals and Clinics (UIHC). Students complete required online training modules through the University's course management system. Once the training modules are completed, students are certified to work at UIHC.

**Patient Care Practicum Courses**

414:198 UIHC Compliance Training  
0 s.h.
Research Experiences for Undergraduates in Microbiology

Web site: http://www.uiowa.edu/microbiology/summer.shtml

The Department of Microbiology offers 403:030 Undergraduate Research Fellowship Program, a nine-week summer program for qualified undergraduate students who are studying microbiology or other biological sciences and are interested in pursuing careers in science. Participants conduct research on a project they select, under the direct supervision of a faculty member.

Each participant receives a stipend for food and personal expenses. The program provides housing.

Applicants must be U.S. citizens or permanent residents who have completed their sophomore or junior year in a bachelor's degree program in the biological sciences. Applications should include a completed application form and two letters of recommendation. Deadline to apply is mid-February for the following summer.

Visit the program's web site or contact the Department of Microbiology, Carver College of Medicine, for more information.

Research Experiences for Undergraduates in Microbiology Courses

403:030 Undergraduate Research Fellowship Program 0 s.h.
Secondary Student Training Program

**Director:** William Swain  
**Web site:** http://www.continuetolearn.uiowa.edu/sstp/

The Secondary Student Training Program (SSTP) provides opportunities for high school students to conduct research in a University of Iowa laboratory under the guidance of a faculty mentor. Students attend faculty seminars, science communication workshops, and many social and recreational activities during the six-week program. During the final week, they present their research results in a formal symposium attended by other SSTP students and the program's faculty and research staff. All SSTP students write a formal abstract summarizing their six weeks of research.

SSTP students live on the University campus during the program.

The University of Iowa's Carver College of Medicine, the Graduate College, and the Colleges of Dentistry, Engineering, Liberal Arts and Sciences, Pharmacy, and Public Health all participate in the Secondary Student Training Program.

Students may enroll in 418:001 Secondary Student Training Program for 0 s.h., or instead, they may choose to take 002:004 Secondary Student Training Program for 3 s.h. and a grade.

**Secondary Student Training Program Courses**

**418:001 Secondary Student Training Program**  
0 s.h.  
Experience conducting research under the guidance of a faculty member; presentation of research findings at concluding seminar. Six weeks.
Student Information Technology Skills

Director: Mary Grabe (Information Technology Services)
Web site: http://cio.uiowa.edu/events/sits

Student Information Technology Skills offers courses for students who are interested in on-campus employment providing IT support or creating and maintaining web sites.

Students are graded on participation in online and class discussions and projects. Students must obtain the instructor's consent before registering for these courses.

Student Information Technology Skills Courses

416:100 Creating Web Sites 2 s.h.
HTML, CSS fundamentals, use of Dreamweaver software for page and site development, web graphics; examination and critique of UI and non-UI web pages; design standards and practices for meeting federal accessibility guidelines; guidance in understanding how to work effectively with campus web customers.

416:102 Core IT Support Skills 2 s.h.
Knowledge and hands-on skills necessary for supporting computers in an institutional setting; basic hardware, operating systems, application, and networking support topics.
Student Services

Director: William (Bill) Nelson
Web site: http://www.imu.uiowa.edu/osl

Student Services focuses on leadership development opportunities for University of Iowa students, offering three courses through the Office of Student Life. Two focus on leadership: 413:050 Introduction to Leadership and 413:100 President's Leadership Class (PLC). The third, 413:075 Advanced Introduction to Fraternity and Sorority Life, examines the experience of belonging to these organizations and looks at how their cocurricular activities and programs enhance students’ college experiences.

Student Services Courses

413:050 Introduction to Leadership 3 s.h.
Overview of leadership theory and skills for effective leadership; historical perspective, development of a personal philosophy of leadership, self-assessments, leadership models; study of groups, culture, and communities, and apply what learned in experiential learning settings; geared toward emerging student leaders. Prerequisite: first- or second-year standing, or transfer student.

413:075 Advanced Introduction to Fraternity and Sorority Life 3 s.h.
Current issues facing leaders (alcohol and hazing education, conflict management, lasting impact of organizations on members); lifetime membership and values-based decision making; for leaders of fraternity and sorority community.

413:100 President's Leadership Class (PLC) 3 s.h.
Meetings on current UI issues and the UI Presidents’ philosophy on leadership; leaders from inside and outside the University, including Board of Regents, political leaders, influential alumni, student leaders, professors, coaches, other administrators; activities linked to the development of personal leadership style. Prerequisites: first-year standing, application, and consent of instructor.
The University of Iowa sponsors or cosponsors a wide variety of study abroad programs in more than 40 countries. Students may choose from summer, semester, academic year, and winter session programs that complement and extend the University's academic programs across the curriculum.

Students also may participate in study abroad programs sponsored by other accredited U.S. and foreign institutions. They should obtain advance approval of all transfer credit by completing a Study Abroad Credit Approval Form.

Information on University of Iowa and other study abroad programs is available at the Office for Study Abroad.

### Study Abroad Courses

#### 165:105 International Student Exchange Program

Study on reciprocal exchange at foreign universities worldwide; some instruction in English. Year-long, one semester, and summer options. Prerequisites: 40 s.h. of credit, g.p.a. of at least 3.00, and in some cases, command of a foreign language.

#### 165:106 UK Exchange Program

Regular degree course work at the Universities of Birmingham, Hull, and Lancaster (England) and the University of Strathclyde (Scotland); humanities, social sciences, physical sciences, business, engineering. Prerequisites: 40 s.h. of credit and g.p.a. of at least 3.00.

#### 165:108 Japan Exchange Program

Seven levels of Japanese language and area studies at Nanzan University's Center for Japanese Studies, Nagoya; language and culture classes at Kanda University of International Studies, Tokyo; language study or degree course work at Meiji University, Tokyo; language and area studies at Nagoya University of Foreign Studies, year or spring; area studies and international relations, taught in English, at Tokyo Denki University, School of Information Environment, fall. Prerequisites vary by university.

#### 165:112 The Iowa Exchanges

Exchange programs offer courses in a wide variety of academic disciplines at several foreign universities. Many exchange partners offer courses taught in English. The language of instruction is listed only if not taught in English. Canada: Mount Royal College, King’s College. China: East China Normal University (Chinese). Czech Republic: Charles University. Denmark: Aalborg University. France: École Supérieure de Commerce d’Amiens (French, business). Germany: Technische Universität Dortmund (German); Fachhochschule Giessen-Friedberg (German, engineering); European Business School. Hungary: Corvinus University, University of Szeged. Iceland: University of Iceland. Japan: Joetsu University of Education (Japanese). Korea: Seoul Women’s University, Ajou University, Ewha Womans University, Kaisit, Sungkyunkwan University, Korea University, Seoul University. Mexico: Universidad Autónoma de Baja (Spanish); Universidad de Colima (Spanish). Netherlands: Radboud Universiteit Nijmegen, Rotterdam School of Management Erasmus University (business); Universiteit van Tilburg (business).

#### 165:117 Frankfurt Exchange Program

Regular degree course work in business and economics at Johann Wolfgang Goethe Universität; courses taught in German. Semester or academic year. Arranged through Tippie College of Business. Prerequisites: two years of college German or equivalent, and relevant academic background.

#### 165:119 Vienna Exchange Program

Regular degree course work in business administration and economics at Wirtschaftsuniversität in Vienna, Austria; taught in English and German. Semester or academic year. Arranged through Tippie College of Business. Prerequisites: one year of college German or equivalent, g.p.a. of at least 2.75, and relevant academic background.

#### 165:126 International Perspectives: Xicotepec

Introduction to providing service to communities in underdeveloped countries through disciplinespecific projects to improve community life in Xicotepec, Mexico; cultural and professional preparation for team work in an international environment; servicelearning course in collaboration with Rotary International. Spring break in Xicotepec, Mexico. Prerequisite: consent of instructor.
165:197 International Development: India
Experience working with a social entrepreneur or enterprise in Tamil Nadu, India; varied social, economic, environmental issues. Three weeks in winter.

165:500 Study Abroad
Students participating in study abroad programs at other U.S. or foreign universities maintain their status at The University of Iowa by registering for this course.

165:501 Study Abroad

165:510 Field Research Abroad
Research projects abroad.

165:600 Study Abroad Independent Enrollment

165:805 Iowa Regents Semester in Wales
University of Swansea, Wales; three-week interdisciplinary course on British life and culture, followed by regular degree course work in the humanities, social sciences, physical sciences, business, engineering. Fall and spring semesters. Prerequisite: g.p.a. of at least 2.80.

165:806 Iowa Regents Semester in Scotland
Advanced undergraduate study at the University of Edinburgh; humanities, social sciences, science, engineering. Fall and/or spring. Prerequisite: g.p.a. of at least 3.00.

165:810 CIEE Spain Program
Several programs in Alcala, Alicante, Barcelona, Madrid, Palma de Mallorca, and Seville addressing specific language proficiency levels and academic interests. Prerequisites vary.

165:811 USAC Studies in Spain
Intensive Spanish language at beginning through advanced levels; culture and literature at third-year level; Basque language; some courses taught in English; program sites include Alicante, Bilbao, Madrid, San Sebastian. Prerequisite: g.p.a. of at least 2.50.

165:812 CIEE France Program
Contemporary French studies program: language skills for students taking courses on French culture and contemporary civilization; two semesters of French required. Critical studies program: critical approach to contemporary French thought in literature, film, philosophy, art, aesthetics; proficiency in French required. Prerequisite: g.p.a. of at least 3.00.

165:813 CIEE China Program
Four programs in the People's Republic of China, one program in Taiwan. Mandarin Chinese, Chinese civilization, area and ethnic studies, and international relations. Summer, semester, or academic year. Prerequisites and sessions vary.

165:814 Iowa in Tianjin
Chinese language, area studies, and folk art; based at Tianjin University of Technology. Summer or semester. Prerequisite: one to three years of college-level Chinese.

165:816 CIC Latin American Health and Nutrition Program
Interdisciplinary and field-based study with course work in Spanish language, public health, social sciences, humanities; independent research project. Summer and/or fall. Prerequisites: one year of Spanish (summer), or two years of Spanish (summer and fall), or three years of Spanish (fall); and g.p.a. of at least 2.50.

165:817 CIC Program in Mexico
University of Guanajuato; advanced Spanish language, Latin American literature, art, history, anthropology, film, political science; homestays with Mexican families. Summer. Prerequisites: five semesters of Spanish and g.p.a. of at least 3.00.

165:818 CIC Program in Quebec
Laval University; French language, Quebec literature and culture; home-stays with Francophone families or dormitory accommodations. Summer. Prerequisites: one year of college-level French and g.p.a. of at least 3.00.

165:820 Semester at The Queen's University of Belfast
Courses at The Queen's University of Belfast, Northern Ireland; nearly 100 subjects, including social sciences and humanities from Irish and Northern Irish perspectives. Prerequisite: g.p.a. of at least 3.00.

165:826 Summer Art Program in Italy
Printmaking and drawing courses in collaboration with the Scuola Internazionale de Grafica; cultural and artistic introduction to Venice and surrounding area; for students at all levels of artistic accomplishment.

165:828 ACTR Program Russia
Russian language programs at institutions in Leningrad, Moscow, or Vladimir; or business language and internship program; or Eurasian language program. Semester, academic year, or summer. Prerequisite: three years of college-level Russian or equivalent.

165:829 London Performance Study
Selected theater productions, lectures, performances, discussions, written exercises, workshops, cultural activities. Credit may be applied toward a University of Iowa major in English or theatre arts. Summer.

165:831 Elementary Student Teaching Abroad
Supervised student teaching in an overseas school.

165:832 Secondary Student Teaching Abroad
Supervised student teaching in an overseas school.

165:833 Academic Year in Freiburg
Combination of special program classes, German for foreigners, and regular degree course work in most liberal arts subjects at Albert-Ludwigs University, Freiburg, Germany. Academic year. Prerequisite: at least four semesters college German or equivalent with g.p.a. of at least 3.00.

165:836 Semester in South India
Indian civilization and culture; science, technology, and sustainable development; women's studies; environment and health, Hindi, Kannada, or Sanskrit; internship or independent research project. Based in Mysore. Fall semester.

165:837 Iowa Regents Semester in Australia
Regular course work in humanities, social sciences, business, engineering, and physical sciences at the University of Newcastle and the University of Tasmania. Fall and spring semesters. Prerequisites: sophomore standing and g.p.a. of at least 2.50.

165:838 Irish Writing Program
Dublin, Ireland; writing workshops directed by Irish writers, literature courses taught by faculty. Summer.

165:839 International Student Exchange Program Direct
Study at some ISEP member institutions in Brazil, Chile, Costa Rica, Estonia, Ghana, Italy, Malta, The Netherlands, New Zealand, South Africa, Thailand, the United Kingdom; fields and terms vary.

165:840 Archaeological Field Work Abroad
Major salvage archaeology projects in the Netherlands excavating sites from 1000 B.C. to 1950 C.E. Summer.

165:841 International Perspectives: Engineering
Exploration of historical, cultural, social, economic, ethical, environmental, and/or political conditions that may affect engineering projects in a specific country or world region; location and topics vary.

165:842 Cross-Cultural Nursing Experience
Practical experience to build understanding of nursing roles and responsibilities in different cultures and health care systems; for advanced nursing students.

165:847 Japan Summer Language Institute
Development of strong communication skills and cultural awareness through integrated language study and homestay, cultural immersion; Hokkaido, eight weeks. Prerequisite: one semester college-level Japanese or equivalent.

165:848 University of KwaZulu-Natal Exchange
Introduction to South African culture from varied academic perspectives, summer session. Enrollment in regular University courses; fall and spring semesters.

165:849 Social Work International Travel/Study Seminar
Impact of socio/political economy on family and community systems in the country visited; seminars, guest speakers, field visits. Summer. Prerequisite: 042:143 or consent of instructor.

165:850 USAC Studies in Costa Rica
Intensive beginning-level Spanish language; advanced language, literature, civilization at third-year level; tropical ecology. Three program sites—Heredia, Puntarenas, San Ramon. Some courses taught in English. Prerequisite: g.p.a. of at least 2.50 and college biology (depending on site).

165:851 USAC Studies in Chile
Intensive beginning-level Spanish language; advanced language, literature, civilization at third-year level; area studies. Some courses taught in English. Prerequisite: g.p.a. of at least 2.50.

165:853 Creativity Workshop
Exercises in creative writing, memoir, drawing, collage, and storytelling to help participants learn how to catch moments of inspiration and develop them, combat writer's block, and trust their individual voices. Summer.

165:854 Undergraduate International Business Abroad
Study of the international business environment in one of the world's financial capitals; may count toward undergraduate business major or Certificate in International Business. Winter. Prerequisites: varies depending on classes being offered and junior standing.

165:855 Business Internships Abroad
Orientation, academic course work, internship; London and Madrid. Prerequisites: g.p.a. of at least 2.75, 45 s.h. earned, at least one semester at The University of Iowa, and Spanish proficiency for Madrid program.

165:856 Regents Hispanic Institute
Study of Spanish language and culture in Valladolid, Spain. Six weeks in summer. Prerequisite: four semesters of college-level Spanish or equivalent.

165:858 Summer Geography Program: Oaxaca, Mexico
Classroom-based instruction with field-based research opportunities; enrollment in Field Research Seminar and two other courses chosen from Culture, People and the Environment, Regional and Economic Development, and Spanish Communication Skills. Summer.

165:861 Iowa Summer Program in Brazil
Intensive Portuguese language at all levels; supplemented with cultural excursions and activities; program in Salvador, Brazil. Summer.

165:865 Iowa Regents Summer Program in France
Study of French language and culture in Lyon, France. Six weeks in summer. Prerequisites: four semesters of college-level French and g.p.a. of at least 2.75.

165:866 Iowa Regents Semester in Ireland
Regular course work in all disciplines at University College Cork in Ireland. Fall and spring semesters. Prerequisites: sophomore standing and g.p.a. of at least 3.00.

165:867 American College of Thessaloniki Semester
Undergraduate studies in varied academic disciplines (business, history, international relations, psychology, fine arts, literature, philosophy, modern Greek language) at the American College of Thessaloniki. Taught in English.

165:868 CIEE Latin America Programs
Choice of several institutions. Argentina: course work in social sciences at the Facultad Latinoamericana de Ciencias Sociales (FLACSO), course work in humanities at the Universidad de Buenos Aires or Universidad Catolica de Argentina. Chile: course work in social sciences at FLACSO Chile, course work in humanities at the Universidad Catolica de Chile, Universidad de Chile, or Universidad de Santiago. Dominican Republic: course work in liberal arts, including Teaching English as a Second Language at the Universidad Madre y Maestra. Mexico: course work in liberal arts at the Universidad de Guanajuato. Peru: course work in business at the Universidad del Pacifico, course work in liberal arts at the Universidad del Pacifico. Prerequisites: g.p.a. of at least 2.75 and fourth semester of college Spanish.

165:869 USAC Studies in France
Beginning through advanced French language study at the University of Pau; additional courses in French culture, literature, politics, history, and other disciplines. Taught in English and French. No previous study of French required. Prerequisite: g.p.a. of at least 2.50.

165:870 Exploring Health Care in Iceland
Exploration of the health care system and practices in Iceland. Two weeks in summer.

165:871 Study Abroad in Montpellier
Special courses for foreign students or regular courses with French students at University of Montpellier; taught in French. Semester or academic year. Prerequisite: four semesters of French.

165:872 USAC Studies in Italy
Intensive beginning-level Italian; intermediate and advanced language; international business, art, architecture and Italian studies options in Turin; intensive language, humanities, and area studies in Viterbo.

165:873 USAC Direct Programs
Direct enrollment in foreign universities in 15 countries. Semester or academic year.

165:874 Victorian Literary London
How Victorian poets, novelists, and artists used London in their works; exploration of London's complex geography, art galleries and exhibitions, homes of 19th-century writers and artists. Prerequisites: demonstrated interest in the subject and good academic standing.

165:875 Overseas Writers Workshop
Opportunity for students to meet with and have their creative nonfiction read and critiqued by prominent host country writers; location, dates, and duration vary.

165:876 Nagoya University of Foreign Studies Exchange
Language instruction at all levels and Japanese studies taught in English at Nagoya University of Foreign Studies. Semester or year.

165:877 USAC Studies in Mexico
Universidad Iberoamericana in Puebla: intensive beginning and intermediate Spanish language; advanced language and literature; Mexican studies and Spanish for health care professionals. Summer or semester. Prerequisite: g.p.a. of at least 2.50.

165:878 Choral Music in England

165:879 Health Promotion in Great Britain
Health care as offered by Great Britain's National Health Service and private providers, compared to health care delivery systems in the United States. Offered every other year during spring break.

165:880 Spanish Language and Service Learning in Peru
Spanish language and Peruvian civilization course work (6 s.h.) and 100 hours of community service learning in Cusco, Peru. Two months in summer. Prerequisite: two years of college-level Spanish or equivalent.

165:881 CIEE Monteverde Tropical Ecology and Conservation
Rain forest conservation in Monteverde, Costa Rica; intensive tropical fieldwork and science course work, excursions, independent project; homestays with local families. Courses taught in English. Prerequisite: environmental science or biology major.
165:882 Community-Based Health Care in St. Lucia
Interdisciplinary program offered in collaboration with the St. Lucian Ministry of Health; health care issues and practice in St. Lucia.

165:883 Russian Politics and Foreign Affairs
Courses in Moscow (Russian politics and institutions, Russian foreign policy) taught in English by Russian professors; additional basic Russian language course (1 s.h.). Summer.

165:884 Istria Study Tour

165:885 USAC Studies in the Czech Republic
Introductory Czech language and culture courses taught in English at Charles University. Summer, semester, or academic year.

165:886 Public Health Challenges in Ecuador
Ecuadoran public health challenges, practices; intersection of culture and cloud forest ecology; students conduct related research among the indigenous communities in the Maquipucuna Bioreserve northwest of Quito.

165:887 Don Giovanni in Milano
Intensive study of Mozart's opera Don Giovanni in Milan, Italy; scene work, recitativi, musical style; opportunity to stage characters in a contemporary interpretation of Don Giovanni, tutor in Italian, and attend a performance at Puccini’s Il trittico at Teatro alla Scala; participants chosen by audition. Ten days in March.

165:888 Virtual International Project Team (VIPT) Abroad
Experience for undergraduate engineering students working on a real-world engineering project with engineering students at Marseille Polytech in Marseille, France; communication by Internet, email, video conference, shared Web sites, and so forth; French students to travel to Iowa in February, Iowa students travel to France in May (includes visits to industries such as Airbus, Eurocopter, and John Deere European headquarters); team-based project experience; understanding engineering standards, practices, and cultures in other countries; teamwork skills related to international work; issues and skills relevant to electronic communication.

165:889 New Literature and Film from Switzerland: Beyond Heidi and Lucerne
New directions in Swiss literature and film. On-campus seminar (two weeks in May, 2 s.h.) and travel in Germany, Switzerland, and Austria (10 days in May-June, 1 s.h.); students choose either or both components; February 15 commitment deadline for travel option. Corequisite: 13E:151.

165:890 Philippines Summer Program
Two-week seminar on Filipino culture, course on Sports and Globalization or a Global Nursing and Health Practicum; hosted by the University of San Carlos, Cebu. Prerequisites: good academic standing, demonstrated interest in sports studies or in any health field; completion of first nursing practicum for nursing students.

165:892 China Olympic Ambassadors Program
Experience working as a media volunteer during the 2008 Beijing Olympic Games; one week of cultural orientation and one month of training at sports venues followed by work for the Olympic News Service covering competitions during the games.

165:893 CIMBA Italy Program
Course work in business and related disciplines in the Veneto region of Italy, taught in English. Four weeks in summer or 13-week semesters.

165:894 Brazilian Carnival: Music and Dance

165:895 Iowa Regents Arabic Program in Morocco
Moroccan colloquial Arabic, modern standard Arabic, and Moroccan culture; development of communication skills and cultural awareness through language study, homestays, cultural immersion. Based in Fez, Morocco. Seven weeks in summer. Prerequisites: completion of General Education Program foreign language requirement and 3.00 minimum g.p.a.
165:896 Literature and Culture of the Middle Ages: Study Abroad in England  
Great medieval literature and the culture in which it was produced; reading, analysis; taught in English at sites connected to the age. Prerequisites: good academic standing and demonstrated interest in the area.

165:897 Global Health in Rural and Resource-Limited India  
Experience in a comprehensive care system where institutional and community health care complement each other in a resource-limited setting; attendance at seminars, participation in clinical discussions, contribution to case reports in the specialty areas represented in the hospital; participation in community outreach and mobile clinics that serve remote tribal populations; individual projects; for clinical or advanced health science students. Prerequisites: good academic standing and enrollment/participation in a medical or health-related field.

165:898 Pharmacy Rotations Abroad  
Practicum experience; focus on best practices for pharmaceutical management, ways to enhance access to medicine; promotion in underserved and resource-limited environments abroad. Recommended: successful completion of all requirements listed as prerequisites for rotations in the advanced practice experience syllabus.

165:900 City of Athens  
Athens from the Bronze Age to the present; archeological, literary, and other evidence to reconstruct the narratives that gave this city and its inhabitants their identity over time; opportunity for students to walk through the city and gain first-hand knowledge of the relationship of its ancient and modern layout; broad understanding of the history of this city that was so important in the development of western ideas and institutions.

165:901 Introduction to Africa: Tanzania  
Initial experience in Africa led by UI professors with extensive experience in Tanzania; East African history, varied cultures of Tanzania (including its Islamic heritage), Tanzania’s national language of Kiswahili; based in Dar es Salaam, East Africa’s largest city; visits to historical and cultural sites in the region; students live with Tanzanian families; one trip outside Dar es Salaam to the island of Zanzibar or to a village in rural Iringa region. Three-week winter session.

165:902 Pearl Harbor to Hiroshima  
Competing narratives of the Pacific War theater during World War II, starting at Pearl Harbor in Honolulu and stretching across the Pacific Ocean to Japan; students visit peace and war memorials and museums in Tokyo, Kyoto, Ise, Hiroshima, and Nagasaki; with the passage of time and the healing of the cultural and physical scars of war, how conflicts are remembered and written into a nation’s history through collective memory becomes the most important legacy of war; the contrasting conceptions of World War II seen from U.S. and Japanese perspectives.

165:925 Iowa International Summer Institute  
Several three-week courses, all satisfying various General Education Program requirements, offered in succession each summer; taught by UI professors; course offerings and locations vary; students may take one, two, or three courses. Prerequisite: good academic standing.
The Summer Undergraduate MSTP Research Program is an intensive eight-week experience for undergraduates interested in pursuing combined M.D./Ph.D. training. Participants gain experience in research laboratories and exposure to clinical medicine and medically relevant research in preparation for careers as physician-scientists.

Students conduct research in the laboratory of a biomedical sciences faculty member, shadow physician-scientists in clinical settings, participate in career development seminars, and attend a weekly seminar series focusing on the intersection of science and medicine.

Participants receive a stipend for the program and live on campus in University housing.

Applicants must be U.S. citizens or permanent residents who have completed their junior year in a bachelor's degree program in the biological or physical sciences. Applicants should submit an application form (available on the program's web site); an official college transcript; and two letters of recommendation. Application deadline is early February for the following summer.

Contact the Medical Scientist Training Program, Carver College of Medicine, for more information.

### Summer Undergraduate MSTP Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>405:041</td>
<td>Summer Undergraduate MSTP Research</td>
<td>0 s.h.</td>
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</table>
For decades, world leaders have defined sustainability as the implementation of policies, processes, and practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. Achievement of sustainability requires an understanding of human and environmental systems and the complex interactions between them.

The Certificate in Sustainability provides students with the knowledge and skills they will need in order to contribute to sustainable systems and their interactions, especially those related to energy, society, culture, economics, the built environment, health, and public policy. The program helps students become effective leaders and agents of change for sustainability in a wide range of vocations, such as academic researcher, teacher, corporate officer, technology specialist, farmer, grassroots advocate, or government official.

The certificate program is open to undergraduate students across the University. It is offered by University College.

Certificate

The Certificate in Sustainability requires 24 s.h. of course work. Because sustainability embraces many disciplines, methodologies, and institutional practices, certificate students must have knowledge of the multidisciplinary breadth of the field, which is represented by the program's four areas of breadth electives: changing environments and human health; energy, climate, and built environments; the power of culture and society; and ethics, economics, and public policy. They also must have experience with analyzing real-life problems in and outside of the classroom and with working collaboratively to solve such problems.

Students complete three introductory course courses; four breadth electives—one from each of the program's four elective areas; and one project course. They may be able to count some courses taken for the certificate toward requirements for their major or for a minor. No more than three certificate courses may be taken from a single department or program. Students must maintain a g.p.a. of at least 2.00 in all certificate course work. A maximum of 6 s.h. of approved transfer credit may be counted toward the certificate.

The certificate requires the following course work.

Introductory Core

Students complete the following three introductory core courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>012:008/159:008 Introduction to Environmental Science</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>044:019 Contemporary Environmental Issues</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>057:013 Introduction to Sustainability</td>
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</tbody>
</table>

Breadth Electives

Students complete one course (at least 3 s.h.) from each of the following four breadth areas.

Changing Environments and Human Health

One of these:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>002:100 Plant Diversity and Evolution</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:103/044:103 Biogeography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:108 Vertebrate Zoology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:134/159:134 Ecology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>002:140 Systematics: Classifying Biodiversity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>004:173 Atmospheric and Environmental Chemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:004 Evolution and the History of Life</td>
<td>3-4 s.h.</td>
</tr>
<tr>
<td>012:107 Marine Ecosystems and Conservation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:108 &amp; 159:100 Introduction to Oceanography - Environmental Sciences Seminar</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:139 Integrated Watershed Analysis</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:140 Natural Hazards</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:166 Hydrogeology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:170 Evolution of Ecosystems</td>
<td>3 s.h.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>16W:137</td>
<td>History of Public Health</td>
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<tr>
<td>16W:138</td>
<td>History of International Health</td>
</tr>
<tr>
<td>16W:140</td>
<td>Disease, Politics, and Health in South Asia</td>
</tr>
<tr>
<td>044:003</td>
<td>Introduction to Earth Systems Science</td>
</tr>
<tr>
<td>044:123</td>
<td>Landscape Ecology</td>
</tr>
<tr>
<td>044:126/012:126</td>
<td>Wetlands: Function, Geography, and Management</td>
</tr>
<tr>
<td>044:137</td>
<td>Health and Environment: GIS Applications</td>
</tr>
<tr>
<td>053:050</td>
<td>Natural Environmental Systems</td>
</tr>
<tr>
<td>175:111/152:111/173:111</td>
<td>International Health</td>
</tr>
<tr>
<td>175:195</td>
<td>Global Environmental Health</td>
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<tr>
<td>175:197</td>
<td>Environmental Health</td>
</tr>
<tr>
<td>00L:031</td>
<td>Ecology</td>
</tr>
<tr>
<td>00L:163</td>
<td>Conservation Biology</td>
</tr>
</tbody>
</table>

**Energy, Climate, and Built Environments**

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>01H:187</td>
<td>Sustainable Architecture: Past, Present, and Future</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:114</td>
<td>Energy and the Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:136/044:186</td>
<td>Soil Genesis and Geomorphology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:172</td>
<td>Glacial and Pleistocene Geology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:189</td>
<td>Global Change Seminar</td>
<td>1-2 s.h.</td>
</tr>
<tr>
<td>044:101/012:104</td>
<td>Climatology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:125/102:125</td>
<td>Environmental Impact Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>044:127</td>
<td>Environmental Quality: Science, Technology, and Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:135</td>
<td>Urban Geography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>052:030</td>
<td>Energy and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:055/152:162</td>
<td>Principles of Environmental Engineering</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>053:102</td>
<td>Groundwater</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:103</td>
<td>Water Quality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:105/012:179</td>
<td>Geology for Engineers</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:126/046:126</td>
<td>International Perspectives: Xicotepec</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:157</td>
<td>Environmental Engineering Design</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:158/175:198</td>
<td>Solid and Hazardous Wastes</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:159/052:235</td>
<td>Air Pollution Control Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:192</td>
<td>Environmental Engineering Seminar</td>
<td>0 s.h.</td>
</tr>
<tr>
<td>053:195</td>
<td>Contemporary Topics in Civil and Environmental Engineering (when topic is public transit operations and planning)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>056:155</td>
<td>Wind Power Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>058:048</td>
<td>Energy Systems Design</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>102:055/033:056</td>
<td>The Splendor of Cities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:101</td>
<td>Planning Livable Cities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:243</td>
<td>Healthy Cities and the Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>165:841</td>
<td>International Perspectives: Engineering (when topic is international perspectives in water science and management)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>175:197</td>
<td>Environmental Health</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**The Power of Culture and Society**

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01D:022</td>
<td>Problems in Design II: Form and Function</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01D:137/049:158</td>
<td>Environmental Design I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>01H:187</td>
<td>Sustainable Architecture: Past, Present, and Future</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>002:095</td>
<td>Plants and Human Affairs</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>004:005</td>
<td>Technology and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:136</td>
<td>Topics in Popular Culture (when topic is food studies and popular culture)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:175</td>
<td>Topics in Film and Literature (when topic is U.S. environmental literature)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>008:179</td>
<td>Literature and Society (when topic is capturing animals)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>------------</td>
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</tr>
<tr>
<td>08C:110/145:110</td>
<td>Creative Writing for the Ecologically Aware: Stories in the Land</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>010:170</td>
<td>Rhetoric of Sustainability</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>16W:122</td>
<td>History and Environment in Africa</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>032:076/149:076</td>
<td>American Indian Environmentalism</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:001</td>
<td>Introduction to Human Geography</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>044:010</td>
<td>The Contemporary Global System</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>044:011</td>
<td>Population Geography</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:104</td>
<td>Environment and Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>045:147</td>
<td>American Disasters</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>045:150</td>
<td>Topics in American Cultural Studies (when topic is nature and the American mind: environment and sustainability in U.S. history)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>045:154</td>
<td>Food in America</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>045:163</td>
<td>American Ruins</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>052:030</td>
<td>Energy and Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:055/033:056</td>
<td>The Splendor of Cities</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:244</td>
<td>Global Perspectives on Environmental Planning</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:010</td>
<td>Anthropology and Contemporary World Problems</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:113</td>
<td>Human Impacts on the Environment</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:114</td>
<td>Environmentalism Cross-Culturally</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:126</td>
<td>Animals, Culture, and Food</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:139/032:130/033:139</td>
<td>Religion and Environmental Ethics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:143</td>
<td>Environment and Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:179</td>
<td>Pleistocene Peopling of the Americas</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>169:040/033:040</td>
<td>The Good Society</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>169:080/033:080</td>
<td>Introduction to Place Studies</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>213:152</td>
<td>Primate Conservation Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>410:068</td>
<td>Wilderness Appreciation</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**Ethics, Economics, and Public Policy**

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>06E:133</td>
<td>Environmental and Natural Resource Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>06E:183</td>
<td>Natural Resource Economics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:045</td>
<td>Introduction to Comparative Politics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>030:060</td>
<td>Introduction to International Relations</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>036:043</td>
<td>Rhetoric, Science, and Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:030</td>
<td>The Global Economy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:112</td>
<td>Mapping American Cities and Regions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:125/102:125</td>
<td>Environmental Impact Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>044:127</td>
<td>Environmental Quality: Science, Technology, and Policy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:177</td>
<td>Environmental Justice</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:194</td>
<td>Geographic Perspectives on Development</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>044:197</td>
<td>Special Topics (when topic is international environmental policy or globalization in the developing world)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>091:291</td>
<td>International Environmental Law</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>102:247</td>
<td>Environmental Management</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>113:139/032:130/033:139</td>
<td>Religion and Environmental Ethics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>129:029</td>
<td>First-Year Seminar (when topic is Black New Orleans before and after Hurricane Katrina)</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>175:252/053:204/152:252</td>
<td>Environmental Health Policy</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**Project Courses**

Students complete one of the following project courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01D:249</td>
<td>Advanced Problems in Design (when topic is special issues and topics in design)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>08N:145</td>
<td>Multimedia Writing (when topic is the green economy: environmental writing and filmmaking)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>012:193</td>
<td>Sustainability Project</td>
<td>arr.</td>
</tr>
<tr>
<td>044:197</td>
<td>Special Topics (when topic is international development)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>045:150</td>
<td>Topics in American Cultural Studies (when topic is living locally: history and culture of Iowa landforms and waterways)</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>053:107/052:107</td>
<td>Sustainable Systems</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
University Housing

Director: Von Stange
Assistant director: Kathleen A. Fitzgerald
Course facilitator: Gregory R. Thompson
Web site: http://housing.uiowa.edu/

University Housing courses are designed to help students involved in the resident assistant (RA) program become effective RAs. Students learn how to establish healthy student communities in the residence halls, how to confront crises and emergencies, and how to develop leadership skills. Enrollment is open only to students who have been selected to serve as resident assistants.

University Housing Courses

415:001 Issues in College Residence Halls I 1 s.h.
Development of knowledge and skills required for work as a resident assistant; creating community, handling crises and emergencies; leadership.

415:002 Issues in College Residence Halls II 1 s.h.
Continuation of 415:001.

415:003 Issues in College Residence Halls 2 s.h.
Content of 415:001 and 415:002 in one semester--development of knowledge and skills required for work as a resident assistant, creating community, handling crises and emergencies, leadership.
University Libraries

Coordinator: Kathy Magarrell  
Web site: http://www.lib.uiowa.edu/instruction/lrc.html

University Libraries offers an activity-based course that shows students how to use library resources to support individual courses of study and how to conduct effective information searches using engines such as Google. Designed primarily for sophomores and juniors, the course introduces students to the basic research process and helps them learn how to apply information skills and concepts to course work and other activities throughout their academic careers.

Subject-specialist librarians use lectures, in-class activities and assignments, and class discussion to present the course material.

University Libraries Courses

417:001 Library Research in Context  
Academic research, effective use of the library and its resources, basic research methods, process of scholarly communication; students apply concepts and processes to their research projects.

417:096 Focused Academic Research for International Studies Majors  
Same as 187:096.
University of Iowa Honors Program

The University of Iowa Honors Program provides talented-and-gifted education for college students. Honors enriches the intellectual and personal lives of outstanding undergraduates across the University. It provides academic opportunities, extracurricular programs, special recognitions, and social events, many held in the award-winning Blank Honors Center. It sponsors two living-learning communities: Honors House in Daum Hall and Honors Nexus in Mayflower Hall. It also includes all members of Iowa Writers, a living-learning community for students with talent and interest in writing.

Within the Honors Program, the Iowa Center for Research by Undergraduates, matches students with mentors and money for research. Honors Writing Fellows and Honors Editing Fellows refine writing skills. Participants in the Iowa Policy Research Organization analyze policies for Iowa’s legislature. Members of the Aces Program for Analysis, Advocacy, and Action prepare for public argument and scholarship competitions. Guests at Honors Dinners practice intellectual conversation. A host of honors activities engage students in the arts, sciences, politics, international relations, mock trials, diverse cultures, varied cuisines, movie making and watching, and field trips. Honors also offers inventive programs for campus and community volunteering.

Honors admits students who show great academic promise for college learning and further achievement. Its members include National Merit Scholars, Presidential Scholars, Old Gold Scholars, National Hispanic Scholars, Tippie Scholars, China BESTS, National Achievement Scholars, and students in the National Academy of Arts, Sciences, and Engineering.

Based on grades and test scores, the Honors Program admits many students directly and automatically from high school. Entering students also may become members by submitting a high school transcript, a letter of recommendation from a teacher, and a personal letter saying how the student expects to gain from participation in the University of Iowa Honors Program.

Honors offers membership to students who earn high grades at the University. It also includes new transfer students who have a cumulative g.p.a. of at least 3.50 and have earned at least 24 s.h. of college credit. It also includes transfer students who enter the University directly from high school.

To remain in the Honors Program, students must maintain a University of Iowa cumulative g.p.a. of 3.33 or higher. To graduate as a member of the University of Iowa Honors Program, students also must complete at least one Honors Commendation, awarded for 12 s.h. sets of courses or experiences provided by the Honors Program. For more information, see Admissions/Honors Memberships on the honors web site.

Academic Opportunities
The University of Iowa Honors Program helps tailor opportunities to different educational needs and goals. Its curricula are broad, flexible, and challenging. Students can take honors courses in any and every semester at Iowa. Most connect small, highly interactive classes of honors students with especially distinguished professors. Many offer new topics each term.

Honors encourages early connections among honors students. In 143:020 Honors Primetime Workshop, entering students can earn an initial semester hour of honors credit for short courses a few days before fall classes begin; 143:030 Honors First-Year Seminar awards 1 s.h. for fall semester work with top professors on their current inquiries; and an all-honors section of 010:003 Accelerated Rhetoric meets the College of Liberal Arts and Sciences' General Education Program rhetoric requirement, which is usually taken during the first or second semester at the University. There are honors sections of courses approved for other areas of the General Education Program and for the Courses in Common program, too.

Honors designations can complement further honors opportunities: honors advanced seminars, honors major seminars, honors studies, even honors practicums (for research, teaching, or service). Many students crown their educations with an honors thesis or project in their major.

Students learn about such opportunities in weekly e-mails from the Honors Program. Honors peer advisors and the honors professional staff offer guidance in personal meetings and group presentations. Each major has an honors advisor to explain options and standards for graduating with honors in that major. Research ambassadors from the Iowa Center for Research by Undergraduates tell students how to get engaged in research. The honors staff can help students design individualized curricula for their special interests. See Academics on the Honors Program web site for more information.

Honors Commendations

The Honors Program and the University president join in awarding Honors Commendations to students who complete at least 12 s.h. of honors course work with a grade of B-minus or higher in each honors course or a comparable level of accomplishment in honors experiences beyond the classroom. There are many ways to earn an Honors Commendation, and many students complete several. Students who entered the University in fall 2008 or later must earn at least one Honors Commendation in order to graduate as a member of the Honors Program. Beginning spring 2011, the University will record Honors Commendations on students' transcripts. See Academics/Honors Commendations on the honors web site for more information.

Honors in the Major

Most majors offer upper-level honors courses, honors seminars, independent research, or opportunities to pursue an original honors thesis or senior project under the guidance of a faculty member. Each college and department determines its own requirements for graduation with honors from that unit, and faculty members in each department serve as honors advisors.

After students declare a major in the College of Liberal Arts and Sciences or enter the Tippie College of Business or the Colleges of Education, Engineering, or Nursing, they should speak with their collegiate or departmental honors advisors about their academic programs. Students who graduate with honors in their majors receive special recognition during commencement, and their permanent academic records note their achievements. To graduate with honors in any major, students also must graduate as members of the University of Iowa Honors Program.

Extracurricular Programs

The University of Iowa Honors Program offers honors students a rich variety of activities outside the classroom. Many honors students find extracurricular programming a good way to meet people, get involved, and learn more about the world around them.

Honors Arts sends groups of honors students to attend music, dance, and theater events at the University and in the community. Students have opportunities to interact with artists, faculty members, and other honors students through related discussions, lectures, and visits.

Honors Discourses stages small-group discussions with professors and other experts on hot topics of the day. Students tap the latest scholarship in developing their personal positions.

Honors Diversity offers a wide range of events to expand cultural horizons and enlarge personal perspectives. These include feasts, films, dances, documentaries, and more.
Honors Gallery takes advantage of the Blank Honors Center’s design to display art. It exhibits student works throughout the year, and it complements these with receptions and other events.

Honors Media can record honors events of all kinds and help present them. Honors Media also holds movie nights, to screen and discuss feature-length films.

Honors Volunteers provides students with service opportunities at varied organizations in eastern Iowa. Honors students learn more about their communities and related needs, often continuing to volunteer on their own.

The Iowa City Foreign Relations Council hosts luncheon dialogues on relevant international issues. Past speakers include award-winning journalists, Nobel Peace Prize laureates, seasoned diplomats, prominent politicians, and policy analysts. Honors students gain more textured understandings of world affairs by listening to and talking with these expert speakers.

The Presidential Scholars Community introduces recipients of Iowa’s top merit scholarships to four years of adventures in service, team building, and more. Scholars participate in cookouts, arts events, canoeing adventures, legacy projects, pizza parties, dinners with faculty, mentoring programs, and volunteer projects.

Honors advises four major national and international honor societies: Phi Eta Sigma, National Society of Collegiate Scholars, Mortar Board, and Omicron Delta Kappa. It also works closely with Phi Beta Kappa in the College of Liberal Arts and Sciences. These societies provide select students with opportunities to lead, serve their communities, and cultivate academic excellence.

For more information, see Activities on the Honors Program web site.

Financial Support

The Honors Program helps students apply for many scholarships, awards, and prizes. The program offers its own scholarships to selected continuing honors students across the University.

Iowa students win major national and international scholarships each year. Honors provides advising and nominations for Rhodes, Marshall, Gates Cambridge, Churchill, Truman, Udall, Goldwater, Fulbright, Humanity in Action, National Science Foundation, and other prominent scholarships. Its Aces Program for Analysis, Advocacy, and Action readies top students for national and international scholarship competitions by educating them for public participation. The Iowa Center for Research by Undergraduates provides research stipends for students and travel grants for those who present work at conferences. Announcements about scholarships and other awards appear on the Honors Program web site and electronic mailing list. Honors Program scholarships are not available to incoming first-year or transfer students.

See Scholarships on the Honors Program web site for more information.

Facilities

Blank Honors Center

The Honors Program makes its home in the Blank Honors Center, a new facility for fostering community among honors students. The Blank Honors Center offers extended hours, social areas, a kitchenette, quiet study areas, classrooms, a computer lab with 24 workstations, office space for honor societies, honors advising for students, and offices for Honors Program staff. The center also has rooms for meetings, events, presentations, and conversation. Honors staff members are always on hand to help students.

Honors Living-Learning Communities

The Honors Program supports two University of Iowa living-learning communities and participates in a third. Living-learning communities are located in University residence halls. All members of Honors House, Honors Nexus, and the Iowa Writers are members of the Honors Program.

Honors House fills Daum Hall and links to the Blank Honors Center by a skywalk. Honors House provides a convenient place for residents to socialize and study with each other. It also sponsors cultural, academic, and social events for honors students living in Daum Hall. It organizes group outings to arts events, workshops on scholarship and
research opportunities, volunteer activities, and dinners with faculty members. Honors House welcomes first-year, transfer, and returning honors students.

**Honors Nexus** occupies a wing of Mayflower Hall. This living-learning community helps its members launch individual and team projects in art, research, service, and leadership, providing a strong start for a university education. It holds a wide variety of social events, and its members participate in the full range of honors courses and activities. Honors Nexus welcomes first-year, transfer, and returning honors students.

The **Iowa Writers** living-learning community uses Stanley Hall to stay connected with resources such as the International Writing Program and the Iowa Writers' Workshop, which are located nearby. It sponsors social events, readings, and writing activities for its members, who submit writing samples when they apply to join the community. All students admitted to the Iowa Writers community become members of the Honors Program, so they can take advantage of the full range of Honors Program courses and activities. Iowa Writers welcomes first-year students.

Students must apply to join the University's living-learning communities; see Living-Learning Communities on the University Housing web site for application and other information about the communities. For additional information about the honors communities, see Places/Living-Learning Communities on the honors web site.

### University of Iowa Honors Program Courses

Honors courses are specifically for honors students.

**143:020 Honors Primetime Workshop**
1 s.h.
Workshop to connect honors students, honors teachers, and staff members; preparation for honors opportunities, especially activities and courses; team work on projects that develop skills of invention and communication; presentation of products and performances.

**143:030 Honors First-Year Seminar**
1-2 s.h.
Small discussion classes taught by faculty members on special topics; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities, field trips). Prerequisite: first- or second-semester standing.

**143:031 Honors Readings for Writers**
1 s.h.
Introduction to the Iowa City writing community; attendance at readings by professional, faculty, and student writers; journals.

**143:040 Honors Studies**
arr.
Independent studies arranged with faculty members who certify satisfactory completion of study plans and performance for topics not covered by other UI courses.

**143:041 Honors Internship**
0-3 s.h.
Independent service internship arranged with faculty members, who certify satisfactory performance and completion of project.

**143:042 Honors Service Learning**
arr.
Service learning projects arranged with faculty members who certify satisfactory completion of study plans and service.

**143:050 Honors Seminar in Humanities**
3 s.h.
Small-class learning with a faculty member on humanities topics. GE: Humanities.

**143:060 Honors Seminar in Social Sciences**
3 s.h.
Small-class learning with a faculty member on social science topics. GE: Social Sciences.

**143:070 Honors Seminar in Natural Sciences**
3 s.h.
Small-class learning with a faculty member on natural science topics. GE: Natural Sciences.

**143:080 Honors Seminar in Quantitative and Formal Reasoning**
3 s.h.
Patterns of reasoning useful for understanding and evaluating scientific evidence, theory, controversy; historical and contemporary examples from the physical, biological, behavioral, biomedical sciences. GE: Quantitative or Formal Reasoning.

**143:090 Honors Research Colloquium**
1-3 s.h.
Small-class research with faculty members; advanced readings.

143:100 Honors Research Practicum 1-3 s.h.
Individual research performed in conjunction with a faculty member's research.

143:101 Honors Teaching Practicum 1-3 s.h.
Teaching internship in first- and second-year courses; may include providing tutorial assistance, conducting review sessions, aiding course organization.

143:102 Honors Writing Fellows: Writing Theory and Practice 3 s.h.
Preparation of honors students selected as writing fellows to serve as peer tutors in writing-intensive courses; theories of writing, evaluation of drafts, peer tutoring with students. Prerequisites: sophomore or junior honors standing, admission to Writing Fellows Program, and availability to work as a writing fellow in subsequent semesters.

143:140 Honors Policy Research Practicum 1 s.h.
Theory and practice of public policy research; development of policy-research skills; production of policy-research papers. Prerequisites: sophomore or junior standing, and consent of instructor.

143:150 Honors Special Topics 1-3 s.h.
Small-class learning with faculty members on advanced topics. Prerequisite: junior or senior honors standing.

143:160 Honors Seminar in Public Scholarship 1-3 s.h.
Preparation for public affairs activities drawing on scholarly resources; introduction to writing personal essays and proposals for scholarship, grant, and research competitions that may require explanation of the proposal's public benefit; techniques and practice for oral presentations, including public interviews, conversations, debates, discussions. Prerequisite: consent of instructor.

143:161 Honors Seminar in Public Service 1-3 s.h.
Preparation for public affairs activities through experience practicing modes of public service; principles of service learning and practical action; introduction to writing service proposals and reports; experience planning public sessions to assess service results and identify potential improvements; preparation for scholarship competitions through opportunities to conceive, conduct, and analyze public action projects. Prerequisite: consent of instructor.

143:162 Honors Seminar in Public Policy 1-3 s.h.
Preparation for analyzing and making public policy; techniques for assessing policy designs and outcomes; opportunity to develop in-depth knowledge of specific policies that are of personal interest to students; experience writing policy proposals and reports for different audiences; practice in public interviews, debates, policy discussions. Prerequisite: consent of instructor.

143:163 Honors Exercise in Public Inquiry 1-3 s.h.
Research with a faculty mentor on a major public affairs issue; definition of a public question; development of a method to address it, with written public account of what to do, how, and why; discussion of argument with mentor and audience arranged with honors director. Prerequisite: consent of instructor.

143:190 Honors Peer Advising 1-3 s.h.
Experience sharing knowledge and experiences of the Honors Program with other students in meetings during office hours, online chats, other venues; peer advisors answer questions, provide information, help students find honors opportunities in and out of class.
University of Iowa Upward Bound is an academic program for eligible high school students from four southeastern Iowa communities. Students participate during the academic year at their local high school and attend a six-week residential program on the University of Iowa campus from mid-June through July. Participants take mathematics, science, language arts, computer technology, and foreign language courses to prepare them for classes they will take at their local high school in the fall. They also participate in extracurricular activities, field trips, and college visits.

Bridge students (those who will graduate from high school the following spring) enroll in a University course during the eight-week summer session. Bridge students participate in an on-campus job shadow and take a transition to college seminar.

Participants receive all services at no cost.

To be admitted to University of Iowa Upward Bound, students must:

- reside in the target area and attend a target school;
- be in grade 9 or 10;
- have a family income that meets U.S. Department of Education low-income guidelines;
- be a potential first-generation college student; and
- show need for Upward Bound services.

Upward Bound provides services to students until they graduate from high school and enroll in postsecondary education.

The University of Iowa Upward Bound Project serves students attending high schools in Columbus Junction, Davenport, Muscatine, and West Liberty, Iowa. Other postsecondary institutions in Iowa also sponsor Upward Bound programs. High school students who do not attend schools served by The University of Iowa's program should ask their counselors whether an Upward Bound program serves their area.

For more information, contact University of Iowa Upward Bound, The University of Iowa.

University of Iowa Upward Bound Courses

401:018 Upward Bound Project 0 s.h.
VIGRE Heartland REU

**Director:** Jonathan Simon (Mathematics)
**Web site:** http://www.uiowa.edu/~vigre

The University of Iowa Department of Mathematics offers a summer program of research experience for undergraduates. VIGRE Heartland REU is designed for well-prepared students who have completed two years of college, but younger or more advanced students also may be admitted. Preference is given to students from Heartland Mathematics Partnership schools.

The eight-week program begins with three introductory workshops followed by work in a small research group with a faculty member. Students choose one of nine research projects that are connected to background developed in the introductory workshops.

Students participate in hands-on introduction to mathematical writing in LaTeX; experience using computer systems such as Maple, Mathematica, or MatLab; and talks and panels about subsequent research opportunities, graduate school, the Graduate Record Examination, and career opportunities. The program also offers cultural and social activities.

Instruction is provided by Department of Mathematics faculty members, Heartland Mathematics Partnership instructors, VIGRE trainees, and staff members of the National Alliance for Doctoral Studies in the Mathematical Sciences, which is supported by the National Science Foundation (NSF).

VIGRE Heartland REU is supported by Vertical Integration of Research and Education in the Mathematical Sciences, an NSF program. For more information visit the VIGRE Heartland REU web site.

**VIGRE Heartland REU Courses**

**419:098 NSF Alliance REU**
Seminars about research and graduate school; prepares students to pursue graduate education in a math science; cultural activities and a research symposium; preference to students from alliance partnership schools. Prerequisite: completion of sophomore year in college, g.p.a. of at least 3.00, and in a math science degree program.

**419:099 Research Experiences for Undergraduates Summer Course**
Introduction to mathematical research in preparation for graduate education.
Division of Continuing Education

Dean: Chet S. Rzonca
Web site: http://www.continuetolearn.uiowa.edu

The Division of Continuing Education increases access to the services and resources of The University of Iowa. In partnership with the University's colleges and departments, the division provides high-quality credit and noncredit courses, workshops, and programs to traditional and nontraditional learners. Using a variety of locations, schedules, and technologies, the division helps provide a University of Iowa learning environment beyond the physical borders of campus.

The division's organization and services include the following.

Center for Credit Programs

Associate dean: Doug Lee
Web site: http://www.continuetolearn.uiowa.edu/ccp

The Center for Credit Programs works with University of Iowa colleges and academic departments to offer for-credit courses in a variety of formats and schedules. Courses are offered on and off campus; formats include distance education and independent study. Courses may be open to University of Iowa students and to persons not formally admitted to a degree program. For more information, contact the Center for Credit Programs or visit its web site.

Saturday & Evening Classes

Director: Susan Beadle
Web site: http://www.continuetolearn.uiowa.edu/ccp/sande

The Center for Credit Programs sponsors University courses on campus at times convenient for part-time or nontraditional students. Undergraduate and graduate course work is available in a wide range of academic disciplines. For more information, contact the Center for Credit Programs.

Summer and Winter Sessions

Associate dean: Doug Lee
Web site, summer session: http://www.continuetolearn.uiowa.edu/ccp/summer
Web site, winter session: http://www.continuetolearn.uiowa.edu/ccp/winter

The University of Iowa conducts a summer session through the Center for Credit Programs with terms of three, six, and eight weeks. Classes also are offered outside these normal summer session terms. A three-week winter session is offered during the break between the fall and spring semesters.

During the summer and winter sessions, students can take undergraduate and graduate course work. Classes during these sessions are taught mainly by University of Iowa faculty members, so students receive the same first-rate instruction provided during the spring and fall semesters. Courses are offered in a variety of formats both on and off campus. They are open to University of Iowa students and to persons not formally admitted to a degree program.

Distance Education Programs and Courses

Associate dean: Anne Zalenski
Web site: http://www.continuetolearn.uiowa.edu/ccp/de

The University of Iowa offers Guided Independent Study and online courses in a wide range of disciplines. For information about course listings (including courses offered on the World Wide Web), procedures, and enrollment, visit the Distance Education web site.

University extension classes are scheduled where they best serve off-campus students, at the request of public school officials, and/or where professional, business, industrial, or other qualified groups express a need for instruction. The center also sponsors courses via the Iowa Communications Network, the Internet, and other technologies. For more information, contact Distance Education or visit its web site.

Bachelor of Applied Studies

Web site: http://www.continuetolearn.uiowa.edu/ccp/blsbas/bas_introduction.htm

The Bachelor of Applied Studies (B.A.S.) is a bachelor's degree designed to be completed entirely by distance
education. The degree requires a minimum of 120 s.h. and is offered without an academic major. Students may earn credit toward the degree by taking courses offered in varied distance education and on-campus formats. Applicants must hold an Associate of Applied Science (A.A.S.) or an Associate of Science (A.S.) degree and should have three or more years of work experience. The B.A.S. is awarded by the University College and is administered by the Division of Continuing Education. For a detailed program description, see Bachelor of Applied Studies (University College) in the Catalog or visit the Distance Education web site.

Bachelor of Liberal Studies

Web site: http://www.continuetolearn.uiowa.edu/ccp/blsbas/bls_introduction.htm

The Bachelor of Liberal Studies (B.L.S.) is a bachelor's degree designed to be completed entirely by distance education. The degree requires a minimum of 120 s.h. and is offered without an academic major. Students may earn credit toward the degree by taking courses offered in varied distance education and on-campus formats. The B.L.S. is awarded by the College of Liberal Arts and Sciences and is administered by the Division of Continuing Education. For a detailed program description, see Bachelor of Liberal Studies (College of Liberal Arts and Sciences) in the Catalog or visit the Distance Education web site.

A. Craig Baird Debate Forum

Coordinator of forensics: Paul Bellus
Web site: http://www.continuetolearn.uiowa.edu/debate/

The A. Craig Baird Debate Forum provides a forum for advancement in argumentation theory and practice. It provides nationally renowned advocacy training programs on issues of public concern and supports an atmosphere of civil discourse. The forum's local, regional, national, and international outreach programs enhance students' learning environment and reach beyond the physical borders of the University of Iowa campus.

The A. Craig Baird Debate Forum administers the following programs.

Intercollegiate debate: provides coaching and research to advance students' competitive success; includes attendance at 10-15 collegiate debate tournaments yearly; the program has won two national championships.

International parliamentary debate: participation in the world tournament.

National Summer Institute in Forensics: a summer program in which students live on the Iowa campus; features Lincoln-Douglas debate and a policy debate institute; the 77-year-old program draws top scholars to campus and has counted students and teachers from every state of the nation and from Japan, Korea, and Guam as participants.

Iowa High School Forensics League: a partnership between Iowa high schools and The University of Iowa that promotes scholarship, communication and expression, and leadership in forensics; founded in 1906, the league holds three tournaments and an academic conference each year that bring more than 1,000 participants to the Iowa campus.

University public debate series: founded in 1960, the series presents 12 radio broadcast debates each year, investigating local, regional, national, and international controversies; debate attendance is required for some University of Iowa courses.

Community public debate series: a forum in which local political, social, economic, and intellectual controversies are debated.

International public debate series: engages in cross-cultural exchanges and provides a forum for high school debaters to participate with The University of Iowa in international debates.

The National Lincoln-Douglas Debate Round-Robin: brings the nation’s top 28 high school Lincoln-Douglas debaters to campus for the national competition.

Secondary Student Training Program

Director: Will Swain
Web site: http://www.continuetolearn.uiowa.edu/sstp

The Secondary Student Training Program (SSTP) provides opportunities for high school students to conduct research in a University of Iowa laboratory under the guidance of a faculty mentor. Students attend faculty seminars, science communication workshops, and many social and recreational activities during the six-week program. During the final week, they present their research results in a formal symposium attended by other SSTP students and the program's faculty and research staff. All SSTP students write a formal abstract summarizing their six weeks of research.

SSTP students live on the University campus during the program.
The University of Iowa's Carver College of Medicine, the Graduate College, and the Colleges of Dentistry, Engineering, Liberal Arts and Sciences, Pharmacy, and Public Health all participate in the Secondary Student Training Program.

Research projects typically are available in biochemistry, biology, biomedical engineering, chemistry, computer science, dentistry, environmental engineering, hydroscience, integrative physiology, internal medicine, microbiology, pediatrics, physics and astronomy, psychology, and speech pathology. Students may earn up to 3 s.h. of University of Iowa credit during the program. See Secondary Student Training Program (University College) in the Catalog.

Center for Conferences

**Director:** Jo Dickens  
**Web site:** [http://www.continuetolearn.uiowa.edu/conferences](http://www.continuetolearn.uiowa.edu/conferences)

The University of Iowa Center for Conferences (UICC) is the University's principal agency for initiating, coordinating, conducting, and supporting noncredit continuing education programs. It also serves as the University of Iowa's Continuing Education Unit (CEU) database.

UICC coordinates national and international conferences for University faculty, departments, colleges, administrative units, student groups and related academic societies, professional associations, and other groups sponsored by the University. Its services include initial planning, site location, budget development, income and expense management, and online conference registration.

The Center for Conferences uses facilities on the University of Iowa campus as well as those located in Iowa City and Coralville, throughout Iowa, and nationwide. For more information, visit the Center for Conferences web site.

Iowa Lakeside Laboratory

**Executive director:** Peter J. van der Linden  
**Web site:** [http://www.continuetolearn.uiowa.edu/lakesidelab/](http://www.continuetolearn.uiowa.edu/lakesidelab/)

Iowa Lakeside Laboratory is a field station run cooperatively by The University of Iowa, Iowa State University, and the University of Northern Iowa and administered by The University of Iowa. The laboratory offers summer courses and research opportunities for undergraduate and graduate students. Courses focus on the ecology, taxonomy, and conservation of northern plains animals, plants, microorganisms, and ecosystems. Students take one course at a time, 40 hours per week, for one to four weeks. Class sizes are small, and most students spend at least part of every day outdoors.

The Board of Regents, State of Iowa, has designated Lakeside Laboratory a Regents Resource Center, dedicated to providing lifelong learning opportunities for Iowans.

For information about academic programs and courses at the laboratory, see Iowa Lakeside Laboratory (University College) in the Catalog or visit the Iowa Lakeside Laboratory web site.

Iowa Summer Writing Festival

**Director:** Amy Margolis  
**Website:** [http://www.continuetolearn.uiowa.edu/iswfest/](http://www.continuetolearn.uiowa.edu/iswfest/)

The Iowa Summer Writing Festival is a short-term, noncredit creative writing program for adults. It brings some 1,400 writers to the University of Iowa campus each summer to participate in weeklong and weekend workshops. The program is open to individuals age 21 and older; the sole requirement is the desire to write.

Participants choose from more than 100 workshops across the genres, including the novel, short fiction, poetry, memoir, essay, screenwriting, playwriting, travel writing, humor, writing for children, mystery, science fiction, and more. There are sessions for all skill levels and objectives. In the workshop format, participants read and discuss each other's own creative work.

Weeklong sessions meet for three hours each day, Monday through Friday, with individual student/instructor conferences as well. Weekend sessions meet for eight hours over two days.

Visit the Iowa Summer Writing Festival web site for information about workshops, schedule, and registration. Information about the coming summer festival workshops and dates usually is posted in February or March.

Iowa Young Writers' Studio
**Director:** Stephen Lovely  
**Web site:** http://www.uiowa.edu/youngwriters

The Iowa Young Writers’ Studio is a two-week summer residential program for high school students who love to write. Students build a community of peers while working with experienced writing teachers, primarily students and graduates of the University’s M.F.A. program in creative writing.

The studio offers three courses of study: poetry, fiction, and creative writing (a mix of poetry, fiction, and creative nonfiction). Each course consists of a seminar and a workshop. In seminars, students read literature by established writers. In workshops they share their own writing, get feedback from their classmates and teacher, and discuss issues of narrative and form.

The studio offers two two-week sessions: one in June and one in July. Young writers who have completed grade 10, 11, or 12 are eligible to attend the studio. Application materials include an application form, a creative writing sample, a statement of purpose, a high school transcript, and a letter of recommendation from an English teacher or another instructor familiar with the applicant’s writing. For complete application information, contact the Iowa Young Writers’ Studio or visit its web site.

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**John and Mary Pappajohn Education Center**

**Director:** Chet Rzonca  
**Manager:** Richard Gardner  
**Web site:** http://www.continuetolearn.uiowa.edu/jmpec

The John and Mary Pappajohn Education Center serves a wide range of adult learning needs. It also provides central Iowa students with access to a variety of University of Iowa undergraduate and graduate degree programs and courses. Located in Des Moines, Iowa, the center can accommodate groups of up to 80 people. It is equipped to handle on-site instructional technology and to deliver distance education to students anywhere. The Pappajohn Education Center also makes noncredit learning opportunities for professional and workforce development available to corporations and individuals.

For more information, visit the John and Mary Pappajohn Education Center web site.

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**Labor Center**

**Director:** Jennifer Sherer  
**Web site:** http://www.continuetolearn.uiowa.edu/laborctr

The University of Iowa Labor Center provides educational and research services to Iowa trade unionists. The center offers a wide range of noncredit continuing and distance education classes on citizenship, collective bargaining, economics, globalization and human rights, grievance and arbitration, labor and employment law, labor history, organization building and strategic planning, union leadership and administration, public policy, workplace health and safety, worker participation, and other topics relevant to union members. Courses are offered both on and off campus at times and locations convenient to working adults. The Labor Center also provides research assistance and technical information.
Administrative Officers

Board of Regents, State of Iowa

The Board of Regents, State of Iowa, governs The University of Iowa, Iowa State University of Science and Technology, the University of Northern Iowa, the Iowa Braille and Sight-Saving School, and the Iowa School for the Deaf. The Board consists of nine members.

President: David W. Miles, West Des Moines  
President pro tem: Jack B. Evans, Cedar Rapids  
Bonnie J. Campbell, Des Moines  
Jenny L. Connolly, Cedar Falls  
Robert N. Downer, Iowa City  
Michael G. Gartner, Des Moines  
Ruth R. Harkin, Cumming  
Craig A. Lang, West Des Moines  
Rose A. Vasquez, Des Moines

Executive director: Robert Donley

Central Administration

President: Sally Mason  
Executive vice president and provost: Wallace D. Loh  
Senior vice president and university treasurer: Douglas K. True  
Vice president for medical affairs: Jean E. Robillard  
Interim vice president for research: Jordan Cohen  
Interim vice president for student services and dean of students: Thomas R. Rocklin  
Interim vice president for legal affairs and general counsel: Carroll J. Reasoner  
Interim vice president for strategic communications: Jude P. West  
Special assistant to the president for equal opportunity and diversity and associate provost: Marcella David  
Special assistant to the president for governmental relations and associate vice president for research: Derek H. Willard  
University ombudspersons: Lois Cox, Cynthia Joyce

Office of the Provost

Provost and executive vice president: Wallace D. Loh  
Associate vice president and director of administration and planning: Don J. Szeszycki  
Interim associate provost for academic administration: Barbara Eckstein  
Interim associate provost and dean of University College: M. Beth Ingram  
Associate provost for faculty: Susan R. Johnson  
Associate provost for graduate education and dean of the Graduate College: John C. Keller  
Interim associate provost and dean of international programs: Downing Thomas  
Associate provost and dean of continuing education: Chet S. Rzonca  
Assistant provost for enrollment services and director of admissions: Michael Barron  
Assistant provost for enrollment services and director of academic advising: Pat J. Folsom  
Assistant provost for enrollment services and university registrar: Lawrence J. Lockwood
Assistant provost for enrollment services and director of student financial aid: Mark S. Warner

Henry B. Tippie College of Business
Dean: William C. Hunter

College of Dentistry
Dean: David C. Johnsen

College of Education
Dean: Sandra B. Damico

College of Engineering
Dean: P. Barry Butler

Graduate College
Dean: John C. Keller

College of Law
Dean: Carolyn C. Jones

College of Liberal Arts and Sciences
Dean: Linda Maxson

Roy J. and Lucille A. Carver College of Medicine
Dean: Paul B. Rothman

College of Nursing
Dean: Rita A. Frantz

College of Pharmacy
Dean: Donald E. Letendre

College of Public Health
Dean: Susan J. Curry

University College
Interim dean: M. Beth Ingram

Division of Continuing Education
Dean: Chet S. Rzonca

Academic Advising Center
Director: Pat Folsom

Admissions
Director: Michael Barron

Center for Credit Programs
Director: Douglas J. Lee

Center for Teaching
Director: Jean C. Florman

Information Technology Services
Chief information officer: Steven R. Fleagle

International Programs
Interim dean: Downing Thomas

International Writing Program
Director: Christopher Merrill

Libraries
University librarian: Nancy L. Baker

Museum of Art
Interim director: Pamela White

Office of the Registrar
University registrar: Lawrence J. Lockwood

Opportunity at Iowa
Director: Marcella David
Student Financial Aid
Director: Mark S. Warner

University Evaluation and Examination Service
Director: Joyce E. Moore

University of Iowa Press
Director: Holly Carver

Women in Science and Engineering
Director: Christine P. Brus

Research

Interim vice president: Jordan Cohen

Interim associate vice president, regulatory affairs: James Walker

Associate vice president and special assistant to the president for governmental relations: Derek H. Willard

Associate vice president, development for arts, humanities, and social sciences: Jay M. Semel

Associate vice president, development for biological, mathematical, and physical sciences: Richard Hichwa

Associate vice president for research, economic development: Thomas R. Sharpe

Associate vice president for research: Francois M. Abboud

Assistant vice president and director, sponsored programs: Twila Fisher Reighley

Deputy general counsel: Grainne P. Martin

Research integrity officer: Richard Hichwa

Animal Resources
Director and university veterinarian: Paul S. Cooper

Clinical Trials Office
Director: Charlotte Talman

Corporate Partnerships
Director: Diane Gallagher

Health Protection Office
Director: James C. Walker

Human Subjects Office
Director: Martha F. Jones

Obermann Center for Advanced Studies
Director: Jay M. Semel

Office of the State Archaeologist
Director: John Doershuk

Pentacrest Museums (Museum of Natural History, Old Capitol Museum)
Director: Pamela White

Public Policy Center
Director: Peter C. Damiano

Sponsored Programs
Director: Twila Fisher Reighley

Technology Innovation Center
Executive director: Thomas R. Sharpe

University Hygienic Laboratory
Interim director: Christopher G. Atchison

University of Iowa Research Foundation
Executive director: Pamela K. York

University of Iowa Research Park
**Student Services**

*Interim director:* Diane Gallagher

*Interim vice president for student services and dean of students:* Thomas R. Rocklin

*Assistant vice president:* Belinda Lantz Marner

*Associate dean of students:* Thomas R. Baker

**Alumni Association**
*President:* Vincent C. Nelson

**Hancher Auditorium**
*Artistic director:* Jacob Yarrow
*Executive director:* Charles Swanson

**Recreational Services**
*Director:* Harry R. Ostrander

**Student Disability Services**
*Interim director:* Mark M. Harris

**Student Health Educational Services**
*Interim administrative director:* Lisa James
*Interim medical director:* Ann Laros

**Support Service Programs**
*Director:* Sheila K. Vedder

**University Counseling Service**
*Director:* Sam V. Cochran

**University Housing**
*Director:* Von Stange

**University Life Centers/Iowa Memorial Union**
*Director:* David L. Grady

**Women's Resource and Action Center**
*Interim director:* Linda Kroon

**Finance and Operations**

*Senior vice president and university treasurer:* Douglas K. True

*Associate vice president and director, facilities services:* Donald Guckert

*Associate vice president and director, human resources:* Susan Buckley

*Associate vice president and university controller:* Terry L. Johnson

*Assistant vice president and director, business services:* Mary Jane Beach

*Assistant vice president and director, public safety:* Charles Green

*Tax manager:* Andrew Ives

*University business manager:* George Hollins

*Director, treasury operations:* Cynthia Bartels

*Director, financial management and budget, and university secretary:* Douglas M. Young

**Health Care**

*Vice president for medical affairs:* Jean E. Robillard

*Associate vice president for medical affairs and chief executive officer, University of Iowa Hospitals and Clinics:* Kenneth P. Kates

*Dean, Carver College of Medicine:* Paul B. Rothman
Center for Disabilities and Development  
Director: Elayne O. Sexsmith

Child Health Specialty Clinics  
Director: Brian Wilkes

Student Health Service  
Interim administrative director: Lisa James  
Interim medical director: Ann Laros

University of Iowa Hospitals and Clinics  
Chief executive officer: Kenneth P. Kates

**Equal Opportunity and Diversity**

Special assistant to the president for equal opportunity and diversity and associate provost: Marcella David

Director: Jennifer Modestou

**University of Iowa Foundation**

President: Lynette L. Marshall
The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor July 8, 2009. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses.

A’HEARN, AMY K., Adjunct Lecturer, General University College, 2006 (2006); BA 2001 Iowa; MS 2004 Western Illinois

ABADA, HICHAM, Clinical Associate Professor, Radiology, 2006 (2006); MD 1992 Medical Univ of Algiers

ABBAS, HARUHI, Adjunct Lecturer, College Transition, 2006 (2006); MA 1985 Indiana PA; MA 1988 Iowa; MA 2002 Iowa

ABBAS, PAUL J., Professor, Communication Sciences and Disorders/Otolaryngology-Head & Neck Surgery, 1974 (1984); BS 1969 Massachusetts Inst of Technolo; PHD 1974 Johns Hopkins

ABBOTT, CHARLES W., Adjunct Lecturer, International Programs, 2009 (2009); BA 1989 SUNY at Buffalo; PHD 2006 University of IA

ABBOTT, LINDA I., Clinical Adjunct Instructor, Nursing, 2000 (2000); BSN 1980 Iowa; MSN 1996 Iowa

ABBOTT, MARY JO, Adjunct Instructor, Pharmacy, 2009 (2009); BSPH 1971 Iowa

ABBoud, Francois, Professor, Physiology/Internal Medicine, 1961 (1968); BS 1948 Christian Brothers’ Schl-Egypt; PNS 1949 Cairo; MBCH 1955 Ain Chams-Egypt; MBBCH 1955 Ain Chams-Egypt

ABDALLAH, MOUIN, Clinical Adjunct Instructor, Internal Medicine, 2008 (2008); MD 1996 American Univ of Beirut

ABDEL-MALEK, KARIM, Professor, Mechanical Engineering/Biomedical Engineering, 1994 (2005); BS 1988 Jordan; MS 1990 Pennsylvania; PHD 1993 Pennsylvania

ABIOSE, ADEMOLA K., Clinical Associate Professor, Internal Medicine, 2005 (2008); MBBS 1985 Lagos

ABRAHAMSON, TIMOTHY GARth, Clinical Adjunct Assistant Professor, Dermatology, 2002 (2002); BA 1993 Wartburg; MD 1997 Iowa

ABBAM, NANCY J., Adjunct Lecturer, Marketing, 2007 (2007); BA 1980 St. Ambrose

ABRAMOFF, MICHAEL DAVID, Associate Professor, Electrical-Computer Engineering/Ophthalmology & Visual Science, 2004 (2008); MS 1989 Amsterdam; MD 1994 Amsterdam; PHD 2001 Utecht

ABRAMOWITZ, PAUL W., Professor, Pharmacy, 1998 (1998); BA 1972 Indiana; BSPH 1977 Toledo; PHARMD 1979 Michigan

ABRAMS, MARY ANN, Clinical Adjunct Assistant Professor, Pediatrics, 2007 (2007); MD 1982 Ohio State; MPH 1988 Ohio State

ABREU, ALISON CORNELIA, Clinical Assistant Professor, Family Medicine/Psychiatry, 2003 (2006); BS 1990 Massachusetts; MD 1998 Iowa

ABU-ARJA, ROLLA F., Clinical Assistant Professor, Pediatrics, 2008 (2008); MBBCH 1998 Jordan

ABU-YOUSEF, MONZER M., Professor, Radiology, 1976 (1991); MBBCH 1970 Cairo-Egypt

ACARREGUI, MICHAEL JOHN, Associate Professor, Pediatrics, 1991 (1999); BA 1981 Oregon; MD 1985 Oregon

ACCARDI, ALESSIO, Assistant Professor, Physiology, 2007 (2007); PHD 2001 Instituto di Cibernetica

ACERBO, MARTIN, Adjunct Assistant Professor, Psychology, 2007 (2007); PHD 2001 Konstanz, Germany

ACHEPOHL, KEITH A., Emeritus Professor, Art & Art History, 1973 (1981); BA 1956 Knox; MFA 1960 Iowa

ACHRAZOGLOU, GEORGE JOHN, Adjunct Associate Professor, Teaching and Learning, 1987 (2008); BA 1981 Iowa; MA 1993 Iowa; PHD 2003 Iowa

ACHUTAN, P CHANDRAN, Adjunct Assistant Professor, Occupational & Environmental Health, 2002 (2002); BSC 1991 Sains Malaysia; MS 1996 Iowa; PHD 2001 Iowa

ACTON, PATRICIA JO NASSIF, Clinical Professor, Law-Faculty, 1981 (1985); BA 1971 Iowa; JD 1974 Iowa

ADAM, MATTHEW, Adjunct Lecturer, Management & Organizations, 2006 (2006); MBA 2002 Iowa

ADAMEK, MARY, Clinical Professor, Music, 1996 (2007); BM 1977 Virginia Commonwealth; MM 1981 Miami; PHD
ADAMS, BRIAN D., Professor, Biomedical Engineering/Orthopaedics and Rehabilitation, 1992 (1996); BS 1978 Nebraska; MD 1982 Nebraska

ADAMS, CHARLOTTE, Associate Professor, Dance, 1998 (2003); BA 1976 Appalachian State; MA 1984 Arizona; MFA 1995 Arizona

ADAMS, CHRISTOPHER MAXIN, Assistant Professor, Internal Medicine, 2006 (2006); BS 1992 Kansas, Lawrence; MD 1999 Iowa; PHD 1999 Iowa

ADAMS, HAROLD P., Professor, Neurology, 1976 (1985); BA 1966 Drake; BS 1968 South Dakota-Vermillion; MD 1970 Northwestern

ADAMS, LAFAYETTE B., Associate Professor, English/American Studies, 1994 (2001); BA 1985 Duke; MA 1987 Virginia; PHD 1993 Virginia

ADAMS, RUSSELL, Clinical Adjunct Associate Professor, Internal Medicine, 2000 (2004); MD 1979 Iowa

ADAMS, SUSAN L., Adjunct Assistant Professor, Nursing, 2008 (2008); BSN 2002 Iowa; MSN 2005 Iowa; PHD 2007 Iowa

ADAMSON, TIMOTHY L., Adjunct Assistant Professor, Religion, 2005 (2004); BA 1988 Chicago; MA 1994 Wesley Theological Seminary; PHD 2002 Oregon

ADCOCK, CRAIG, Professor, Art & Art History, 1994 (1994); BFA 1971 Colorado; MA 1974 University of Colorado; PHD 1981 Cornell University

ADDOIS JR, LAIRD C., Emeritus Professor, Philosophy, 1963 (1974); BA 1959 Iowa; MA 1960 Brown; PHD 1964 Iowa

ADOLPHS, RALPH, Adjunct Professor, Neurology, 1997 (2005); BSC 1986 Stanford; MSC 1986 Stanford; PHD 1992 California Technology of Tech

ADRAIN, JONATHAN M., Associate Professor, Geoscience, 1999 (2004); BS 1989 Alberta; PHD 1993 Alberta

ADRAIN, TIFFANY SARA, Adjunct Instructor, Geoscience/General University College, 2004 (2004); BA 1988 Exeter; BS 1995 London; MS 2003 Iowa

AFIFI, ADEL K., Emeritus Professor, Neurology/Anatomy & Cell Biology/Pediatrics, 1973 (1980); BA 1951 American University of Beirut; MD 1957 American University of Beirut; MS 1965 Iowa

AGRAWAL, NEERJA, Clinical Assistant Professor, Internal Medicine, 2007 (2007); MD 1993 Paraiba, Brazil

AGRELL, JEFFREY, Associate Professor, Music, 2000 (2008); BA 1970 St Olaf; MM 1974 Wisconsin

AGUILAR JR, AGUSTIN, Clinical Assistant Professor, Emergency Medicine, 1988 (1995); BS 1978 Emory; MD 1982 Univ Autonomoa de Guadalajara

AHARI, ABDI, Clinical Adjunct Assistant Professor, Surgery, 2009 (2009); BA 1987 Rudbeckianska Skolan; MD 1995 Uppsala Univ of Med

AHLERS, TIMOTHY JOHN, Adjunct Lecturer, Health Management & Policy, 2008 (2008); BBA 2003 Iowa; MBA 2005 Iowa; MHA 2005 Iowa

AHMED, AZEEMUDDIN, Clinical Associate Professor, Emergency Medicine, 2005 (2008); BA 1996 Augustana; MD 2000 Iowa

AHN, JOONG, Clinical Associate Professor, Radiology, 2004 (2004); MD 1989 Seoul National; MS 1994 Seoul National; PHD 1999 Seoul National

AHRENSDEN, JON SIDNEY, Clinical Adjunct Assistant Professor, Family Medicine, 2008 (2008); MD 1982 Iowa

AHRENS, RICHARD C., Professor, Pediatrics, 1980 (2002); BS 1969 Wisconsin-Madison; MD 1973 Medical College of Wisconsin; MS 1980 Iowa

AIKIN, JUDITH P., Emeritus Professor, German, 1975 (1988); BA 1968 Oregon; MA 1969 Oregon; PHD 1974 California-Berkeley

AJLUNI, NADER, Clinical Adjunct Assistant Professor, Pediatrics, 1999 (1999); DO 1985 Osteopathic Medicine

AKBAR, RAJA M., Clinical Adjunct Assistant Professor, Psychiatry, 1999 (1999); MD 1971 King Edward Medical

AKER, JOHN GREGORY, Adjunct Instructor, Nursing, 1995 (1998); MS 1987 KANSAS

AKGUN, UGUR, Adjunct Assistant Professor, Physics & Astronomy, 2006 (2006); PHD 2003 Iowa
AKIYAMA, YASUKO, Lecturer, Teaching and Learning, 2007 (2007); BA 1985 Okayama Univ; MA 1994 Penn State Univ; PHD 2003 Iowa

AKYE, MODEI KWASI, Adjunct Instructor, Dance, 2008 (2008); BA 1997 Iowa

AL-SHAWWA, BAHAA’UDDIN A., Clinical Adjunct Assistant Professor, Pediatrics, 2004 (2004); MD 1995 University of Jordan

AL-ZEIN, NASER JUMA, Clinical Adjunct Assistant Professor, Pediatrics, 2006 (2006); MD 1993 Jordan Univ

ALABSI, SAMIR Y., Clinical Adjunct Assistant Professor, Pediatrics, 2007 (2007); MD 1985 Cairo, Egypt

ALARCON-SCHRODER, CARLOS, Clinical Adjunct Assistant Professor, Family Medicine, 2007 (2007); MD 1994 Universidad Nacional Federico

ALBERS, GARY RONALD, Adjunct Instructor, Pharmacy, 1997 (1997); BS 1975 Iowa

ALBERT, JAMES LAURENCE, Lecturer, Theatre Arts/Dance, 1996 (1999); MFA 1986 Iowa

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WITT, ROBERT, Adjunct Assistant Professor, Pharmacy, 2007 (2007); BS 1972 St. Louis; BS 1975 Nebraska

WITTE, SUZANNE BAKKE, Adjunct Instructor, Social Work, 2005 (2005); BA 1985 Iowa; MSW 1990 Iowa

WITTMENBERG, CRAIG, Clinical Adjunct Associate Professor, Family Medicine, 2004 (2004); BA 1987 Iowa; MD 1991 Iowa

WITTMENBERG, DAVID H., Associate Professor, English/Cinema & Comparative Literature, 1998 (2004); BA 1987 Yale; MA 1989 Northwestern; PHD 1995 Johns Hopkins; MARCH 1996 Univ of California, Berkeley

WITWER, BEVERLY, Lecturer, Teaching and Learning, 2001 (2001); MA 1981 Iowa

WITZKE, BRIAN J., Adjunct Associate Professor, Geoscience, 1982 (1995); BA 1974 Wisconsin-Milwaukee; MS 1976 Iowa; PHD 1981 Iowa

WOCHER, JOHN C., Adjunct Lecturer, Health Management & Policy, 1994 (1994); BA 1991 Maryland

WOERNER, ROBERT F., Emeritus Associate Professor, English, 1957 (1966);

WOHLGENANNT, MARKUS, Associate Professor, Physics & Astronomy, 2002 (2008); MS 1997 Graz-Austria; PHD 2000 Utah

WOIDTKE, TRACIE L., Adjunct Professor, Finance, 2009 (2009); PHD 1974 Tulane University; BS 1988 Millsaps
WOITH, WENDY LEE, Adjunct Assistant Professor, Nursing, 2008 (2008); BSN 1982 Illinois, Wesleyan; MSN 1991 Illinois, Urbana; PhD 2006 Illinois, Chicago

WOJTAK, BRIANNE LEE, Adjunct Instructor, Integrative Physiology, 2009 (2009); BA 2002 Iowa

WOLF, ANTHONY DAVID, Assistant Professor, Military Science, 2005 (2005); BGS 1987 Iowa; AA 1995 Kirkwood Community; MA 2002 Iowa

WOLF, BRIAN ROBERT, Assistant Professor, Orthopaedics and Rehabilitation/Physical Therapy, 2003 (2003); BA 1989 Loyola; MD 1997 Loyola; MS 2006 Iowa

WOLF, JOSEPH MATHEW, Adjunct Instructor, Pharmacy, 1997 (1997); BSPH 1985 Iowa

WOLF, MARGARET CATE, Clinical Adjunct Assistant Professor, Urology, 1996 (1996); MD 1987 Iowa

WOLF, MARGERY, Emeritus Professor, Anthropology/Women's Studies, 1985 (1985);

WOLFE, KATHERINE, Associate Professor, Music, 2004 (2004); BM 1992 Indiana; MM 1994 Manhattan School of Music

WOLFE, STEVEN L., Clinical Professor, Family Medicine, 2001 (2001); BA 1968 Cornell; MD 1976 Iowa

WOLFSON, SARA C., Emeritus Associate Professor, Educ Policy & Leadership Studies, 1971 (1977); BS 1957 Appalachian State; MS 1962 North Carolina; EDD 1971 Houston

WOLFSON, SHERWOOD, Emeritus Associate Professor, Oral & Maxillofacial Surgery, 1971 (1976); BS 1953 Westminster; DDS 1957 Pittsburgh

WOLLAGT, BRETT, Adjunct Assistant Professor, Music, 2001 (2001); DMA 1994 Iowa

WOLIN, KAREN ALLISON, Clinical Assistant Professor, Obstetrics & Gynecology, 2007 (2007); BA 1987 Brown; MA 1990 Illinois; MD 1994 Illinois

WOLINSKY, FREDRIC D., Professor, Health Management & Policy/Internal Medicine, 2003 (2003); BA 1972 Friends UNI; MA 1974 Drake; PhD 1977 Southern Illinois

WOLKEN, STEPHEN H., Clinical Adjunct Assistant Professor, Ophthalmology & Visual Science, 1975 (1996); MD 1968 Iowa

WOOD, HEIDI MARIE, Adjunct Instructor, Pharmacy, 2008 (2008); PHAR 2008 Iowa

WOOD, JESSICA LEE, Clinical Assistant Professor, Psychiatry, 2009 (2009); BS 1992 Wisconsin; PHD 2002 Iowa; MD 2002 Iowa

WOOD, MICHAEL M., Adjunct Lecturer, Management & Organizations, 2005 (2005); BS 1971 Iowa State; MBA 1986 Iowa

WOOD, SHARI M., Adjunct Instructor, Pharmacy, 2000 (2000); BS 1993 Iowa; BSPAN 1993 Iowa

WOOD, SUSANNAH MARGARET, Assistant Professor, Counseling, Rehab & Stu Dev, 2006 (2006); BA 1997 Richmond(VA); MED 2000 William & Mary; PHD 2006 William & Mary

WOODARD, FREDRICK, Emeritus Associate Professor, English, 1973 (1979); BA 1961 Iowa Wesleyan; MA 1971 Iowa; PhD 1976 Iowa

WOODHEAD, JEROLD C., Associate Professor, Pediatrics, 1979 (1988); BA 1967 Stanford; MD 1971 Yale

WOODMAN, CATHERINE L., Associate Professor, Psychiatry/Family Medicine, 1990 (2000); BA 1981 Brown; MD 1985 Brown

WOODS, THOMAS B., Clinical Adjunct Lecturer, Nursing, 2004 (2004); BS 2000 St. Francis; MSN 2006 The University of Iowa

WOODS-GROVES, SUZANNE, Assistant Professor, Teaching and Learning, 2008 (2008); BS 1998 Auburn; MED 1999 Auburn; PHD 2007 Auburn

WOODWORTH, GEORGE, Professor, Biostatistics/Statistics & Actuarial Science, 1971 (1996); BA 1962 Carleton; PHD 1966 Minnesota

WORKMAN, DOUGLAS M., Clinical Adjunct Assistant Professor, Family Medicine, 1995 (2001); MD 1989 Iowa

WORRELL, JAMES B., Clinical Associate Professor, Neurology, 2001 (2001); BA 1964 Iowa; MD 1967 Iowa

WRENN, DOUGLAS EDWARD, Adjunct Instructor, Pharmacy, 1997 (1997); BS 1981 Iowa

WRIGHT, ARLENE, Adjunct Instructor, Pharmacy, 1997 (1997); BSpH 1981 Drake

WRIGHT, DIANA L., Clinical Adjunct Instructor, Internal Medicine, 2001 (2001); MD 1978 Iowa

WRIGHT, KAYE L., Adjunct Instructor, Pharmacy, 1997 (1997); BSpH 1980 Drake

WRIGHT, MICHAEL EUGENE, Assistant Professor, Physiology, 2008 (2008); BS 1994 Nevada; PHD 2000 Washington

WRIGHT, TIMOTHY ALLEN, Adjunct Assistant Professor, Pharmacy, 2009 (2009); PHARMD 2008 Midwestern

WU, CHUN-FANG, Professor, Department of Biology, 1979 (1989); BS 1969 Tunghai-Taiwan; PHD 1976 Purdue

WU, HAN-CHIN, Emeritus Professor, Civil-Environmental Engineering/Mechanical Engineering, 1970 (1981); BS 1960 National Taiwan; MS 1965 Rhode Island; MS 1967 Yale; PHD 1970 Yale

WU, SHIH-YEN, Emeritus Professor, Economics, 1964 (1968);

WU, XIAODONG, Assistant Professor, Electrical-Computer Engineering/Radiation Oncology, 2005 (2005); BS 1992 Peking; MCS 1995 Peking; PHE 2002 Notre Dame

WU, YING-QING, Professor, Mathematics, 1993 (2001); BS 1982 Hehai-China; MS 1984 Beijing-China; PHD 1987 Beijing-China

WU, YUEJIN, Associate Professor, Internal Medicine, 2009 (2009); PHD 1990 Tongji Medical

WULF, JOEL, Adjunct Instructor, Social Work, 2003 (2003); BA 1978 Iowa; MSW 1992 Iowa

WUNDER, CHARLES C., Emeritus Professor, Physiology, 1954 (1971); AB 1949 Washington and Jefferson; MS 1952 Pittsburgh; PHD 1954 Pittsburgh

WURSTER, DALE ERIC, Professor, Pharmacy/Chemical & Biomedical Engineering, 1982 (1996); BS 1974 Wisconsin; PHD 1979 Purdue

WURSTER, LAURIE NICOLE, Adjunct Instructor, Pharmacy, 1998 (1998); BS 1993 Iowa

WYMAN, CHRISTOPHER RYAN, Assistant Professor, Computer Science, 2004 (2004); BS 1999 Minnesota; PHD 2004 Univ. of Utah

XIA, TING, Adjunct Instructor, Biomedical Engineering, 2009 (2009); PHD 2007 Iowa

XIAO, SHAOPING, Associate Professor, Mechanical Engineering, 2003 (2008); BS 1995 Univ of Science and Tech China; MS 1998 Univ of Science and Tech China; PHD 2002 Northwestern

XIE, YANG, Assistant Professor, Pharmacy, 2007 (2007); PHD 2006 State Univ of New York

XING, TAO, Adjunct Assistant Professor, Mechanical Engineering, 2006 (2006); PHD 2002 Purdue

XING, YI, Assistant Professor, Biomedical Engineering/Biostatistics/Internal Medicine, 2006 (2006); BE 2000 Univ of Science and Tech China; BS 2001 Univ of Science and Tech China; PHD 2006 UCLA

XIONG, JINHU, Associate Professor, Radiology/Biomedical Engineering, 2003 (2003); MEE 1986 Tsinghua Beijing; PHD 1995 Texas

XUE, HAI-HUI, Assistant Professor, Microbiology, 2006 (2006); MD 1991 China Medical; MS 1994 China Medical; PHD 2000 Hamamatsu

YABLON, NICHOLAS, Associate Professor, American Studies, 2003 (2009); BA 1994 Birmingham, England; PHD 2002 Chicago

YACK, H JOHN, Associate Professor, Physical Therapy, 1994 (1994); BS 1973 New Hampshire; MS 1981 North Carolina; PHD 1987 Waterloo-Canada

YAEGER, JACKIE L., Clinical Adjunct Assistant Professor, Family Medicine, 2002 (2002); BA 1984 St Olaf; MD 1990 Iowa
YAGER, ROBERT E., Emeritus Professor, Teaching and Learning, 1956 (1967); BA 1950 Iowa State; MS 1953 Iowa; PHD 1957 Iowa

YAHAR, TIMOTHY LEE, Associate Professor, Microbiology, 2001 (2006); BS 1991 Wisconsin-Stevens Point; MS 1995 Medical College of Wisconsin; PHD 1998 Medical College of Wisconsin

YAMADA, THORU, Professor, Neurology, 1975 (1984); MD 1966 Nagoya

YANG, BAOLI, Associate Professor, Obstetrics & Gynecology, 1999 (2009); MD 1986 Beijing Medical; PHD 1994 North Carolina

YANG, JIANMING, Adjunct Assistant Professor, Mechanical Engineering, 2007 (2007); PHD 2004 Maryland

YANG, JINGZHEN, Assistant Professor, Community & Behavioral Health, 2004 (2004); BA 1982 Suzhou, China; MPH 1999 Indiana; PHD 2004 North Carolina

YANG, ROBERT K., Clinical Assistant Professor, Orthopaedics and Rehabilitation, 2007 (2007); MD 1996 Washington School of Med

YANKOWITZ, JEROME, Professor, Obstetrics & Gynecology, 1993 (2003); BS 1980 Yale; MD 1986 State U of NY-Dwnst Med Cntr

YANS, JAVAD, Clinical Adjunct Associate Professor, Internal Medicine, 1973 (1983); MD 1965 Tabriz Iran Medical School

YAO, TONG, Assistant Professor, Finance, 2008 (2008); BA 1991 Fudan; PHD 2001 Boston College

YARBROUGH, DONALD B., Professor, Psych & Quant Foundations, 1982 (2009); BA 1971 Hendrix; MA 1973 Kentucky; PHD 1982 Georgia

YE, YANGBO, Professor, Mathematics, 1990 (1999); BS 1981 QingHua-China; MA 1982 Columbia; MPH 1986 Columbia; PHD 1986 Columbia

YEAGER, ANSON, Clinical Adjunct Associate Professor, Surgery, 2004 (2004); BA 1976 Augustana; BS 1978 South Dakota MED; MD 1980 Tufts Med, MA

YEAGER, VONZELL D., Adjunct Instructor, Library & Information Science, 2009 (2009); BA 1998 N. Carolina; AMLS 2007 Pittsburgh

YEAKEL, GREGORY J., Adjunct Assistant Professor, Pharmacy, 2005 (2005); BPSH 1974 Drake

YEAMAN, CHARLES A., Associate Professor, Anatomy & Cell Biology, 2001 (2006); BS 1986 Calif-San Diego; PHD 1993 Wisconsin

YEATS, ROBERT EVAN, Emeritus Associate Professor, Music, 1973 (1981); BS 1966 Ithaca; MA 1971 Iowa; MFA 1977 Iowa

YEE, NELSON SHU-SANG, Assistant Professor, Internal Medicine, 2006 (2006); BS 1987 Mass. College of Pharmacy; MD 1995 Cornell; PHD 1995 Cornell

YEH, MALCOLM H., Clinical Associate Professor, Neurology, 1992 (2004); BA 1980 Calif-Berkeley; MD 1985 Calif-Davis

YEH, PI-MING, Adjunct Assistant Professor, Nursing, 2008 (2008); BS 1986 Wisconsin-Milwaukee; MN 1996 Tiawan; PHD 2003 Wisconsin-Milwaukee

YODER, FRANKLIN LEE, Adjunct Assistant Professor, History, 2000 (2000); BA 1988 Iowa; MA 1989 Chicago; PHD 1999 Chicago

YODER, REAGAN LEE, Adjunct Assistant Professor, Art & Art History, 2001 (2001); BA 1971 Bethel; MA 1985 Iowa; MFA 1987 Iowa

YOREK, MARK A., Professor, Internal Medicine, 1987 (2002); BS 1976 Bemidji; PHD 1981 North Dakota

YOST, WILLIAM J., Clinical Adjunct Associate Professor, Internal Medicine, 1997 (2001); MD 1988 Iowa

YOUEN, NARA, Assistant Professor, Marketing, 2008 (2008); PHD 2002 Northwestern

YOUNESS, FADI M., Clinical Assistant Professor, Radiology, 2005 (2005); MD 1996 Amer Univ of Beirut-Lebanon

YOUNG, JAMES R., Clinical Adjunct Assistant Professor, Family Medicine, 1976 (2002); BS 1967 Iowa State; MD 1970 Iowa

YOUNG, JOANN L., Adjunct Instructor, Social Work, 1998 (1998); MA 1974 Drake
YOUNG, LAURA E., Lecturer, Art & Art History, 1997 (2006); BA 1963 Skidmore; MA 1978 Montclair State; MFA 1983 Rutgers

YOUNG, MARK A., Associate Professor, Chemistry, 1990 (1997); BA 1979 Princeton; PHD 1987 California-Berkeley

YOUNG, NATHAN CLINE, Adjunct Associate Professor, Civil-Environmental Engineering, 2008 (2008); BSE 1998 Iowa; MS 2000 Iowa; PHD 2006 Iowa


YOUNGBLOOD, DAWN MICHELLE, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 1998 Iowa

YUAN, YU, Assistant Professor, Finance, 2008 (2008); MA 2003 Wisconsin - Madison; PHD 2008 Wharton

YUASA, IKUKO PATRICIA, Assistant Professor, International Programs/Asian & Slavic Languages & Literature, 2002 (2002); BA 1990 International Chirstian; MA 1994 Hawaii; PHD 2001 California-Berkeley

YUEN, KEE-HO, Professor, Art & Art History, 2000 (2009); BA 1983 Chinese of Hong Kong; MA 1988 Iowa; MFA 1989 Iowa

ZABNER, JOSEPH, Professor, Internal Medicine, 1995 (2004); MD 1987 UnivCentral de Venezuela

ZADEII, GHOLAM REZA, Clinical Adjunct Assistant Professor, Internal Medicine, 2004 (2004); BA 1978 Incarnate Word College; MS 1980 Incarnate Word College; MD 1984 Santiago U School of Medicine

ZAHEER, ASGAR, Assistant Professor, Neurology, 1995 (1995); PHD 1979 Bombay-India

ZAJACZ, RITA, Assistant Professor, Communication Studies, 2005 (2005); BA 1995 Budapest, Hungary; MA 1998 Indiana; PhD 2005 Indiana

ZALENSKI, ANNE WHITEHEAD, Adjunct Assistant Professor, Counseling,Rehab & Stu Dev, 2009 (2009); MA 1985 Iowa; PhD 2001 Iowa

ZAMBA, GIDEON J., Assistant Professor, Biostatistics, 2003 (2003); MS 1995 DU Benin; PhD 2003 Minnesota

ZAVALA, DONALD, Emeritus Professor, Internal Medicine, 1969 (1976);

ZAVAZAVA, NICHOLAS, Professor, Internal Medicine, 2001 (2003); BSC 1980 ZIMBABWE; MBCHB 1987 Kiel; MD 1988 Kiel; PHD 1993 Kiel

ZEBROWSKI, PATRICIA, Professor, Communication Sciences and Disorders, 1988 (2009); BS 1977 State Univ of NY-Geneseo; MS 1981 Syracuse; PHD 1987 Syracuse

ZEIDAN, Zahi E., Clinical Assistant Professor, Pediatrics, 2006 (2006); BS 1992 American Univ of Beirut; MD 1997 American Univ of Beirut

ZEITHAMEL, MARCIA C., Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 2005 Kansas

ZELENSKI, NADIYA, Adjunct Instructor, Pharmacy, 2009 (2009); AA 2002 Southeastern CC; PHARMD 2009 Iowa

ZELNICK, CHARLES JAMES, Clinical Adjunct Associate Professor, Family Medicine, 1999 (2005); MD 1979 Cincinnati

ZEMAN, CATHERINE, Adjunct Assistant Professor, Occupational & Environmental Health, 2001 (2001); PHD 2000 Iowa

ZEMAN, CHRISTINE LYNN, Adjunct Assistant Professor, Pharmacy, 2008 (2008); PHARMD 2000 Iowa

ZEPESKI, KAY ILENE, Adjunct Instructor, Pharmacy, 1998 (1998); BS 1981 Iowa

ZHANG, HANTAO, Professor, Computer Science, 1988 (2000); BS 1981 Wuhan-China; PHD 1984 Nancy-France; PHD 1988 Rensselaer Polytechnic-France

ZHANG, QIN, Assistant Professor, Marketing, 2009 (2009); MS 2000 Washington - St. Louis; PHD 2002 Washington - St. Louis

ZHANG, YING J., Associate Professor, Biostatistics, 2004 (2004); BS 1985 Fudan-China; MS 1988 Fudan-China; MS 1994 Florida State; PHD 1998 Washington

ZHANG, YOU-KUAN, Professor, Geoscience/Civil-Environmental Engineering, 1993 (2006); BS 1978 Chamgchun Institute-China; MS 1982 Nanjing-China; PHD 1990 Arizona

ZHANG, YUZHE, Assistant Professor, Economics, 2006 (2006); BS 2000 University of Wuhan; MA 2003 Minnesota; PHD 2006 Minnesota
ZHAI, XIAOYUAN, Lecturer, Asian & Slavic Languages & Literature, 2008 (2008); MA 2008 Memphis

ZHUPANSKA, OLESYA I., Assistant Professor, Mechanical Engineering, 2007 (2007); MS 1996 Kiev Taras Schevchenk; PHD 2000 Kiev Taras Schevchenk

ZIEBOLD, CHRISTINE SIBYLLE, Clinical Assistant Professor, Pediatrics, 2006 (2006); MD 1988 Albertus Magnus; PHD 1990 Albertus Magnus; MPH 2003 University of Minnesota

ZIEGLER, EKWARD E., Professor, Pediatrics, 1973 (1981); MD 1964 Innsbruck-Austria

ZIKE, WILBUR L., Emeritus Associate Professor, Surgery, 1969 (1975); AB 1953 Houghton; MD 1957 McGill

ZIMA, WILLIAM, Emeritus Associate Professor, Journalism & Mass Communication, 1954 (1973);

ZIMMERMAN, DALE, Professor, Statistics & Actuarial Science/Biostatistics, 1986 (1999); BS 1980 Iowa State; MS 1982 Minnesota; PHD 1986 Iowa State

ZIMMERMAN, MIRIAM BRIDGET, Clinical Professor, Biostatistics, 2003 (2008); BS 1978 Phillipines; MS 1982 Phillipines; MS 1984 Iowa State; PHD 1987 Iowa State

ZIMMERMANN, GERALD NEAL, Adjunct Associate Professor, Communication Sciences and Disorders, 1977 (1982); PHD 1973 Iowa

ZINGMAN, LEONID, Assistant Professor, Internal Medicine, 2007 (2007); MD 1984 First Leningrad Medical


ZLAB, MARK K., Clinical Adjunct Assistant Professor, Otolaryngology-Head & Neck Surgery, 1998 (1998); MD 1985 Nebraska

ZLATNIK, FRANK J., Emeritus Professor, Obstetrics & Gynecology, 1975 (1984); BA 1962 Carleton; MD 1966 Cornell

ZUKIN, JANE, Lecturer, Management & Organizations, 2007 (2007); BA 1970 Wayne State; MA 1997 Eastern Michigan

ZURBRIGGEN, THOMAS L., Clinical Adjunct Instructor, Internal Medicine, 1982 (1988); MD 1978 Iowa

ZWENG, MARILYN J., Emeritus Professor, Teaching and Learning/Mathematics, 1965 (1972); BS 1953 Michigan State; MS 1957 Wisconsin; PHD 1963 Wisconsin
Iowa Administrative Code

The following is extracted from the Board of Regents section of the Iowa Administrative Code as of April 30, 2009.

Admission Rules Common to the Three State Universities

681--1.1(262) Admission of undergraduate students directly from high school

Students desiring admission to the University of Iowa, Iowa State University, or the University of Northern Iowa must meet the requirements in this rule and also any special requirements for the curriculum, school, or college of their choice.

1.1(1) Application

Applicants must submit a formal application for admission, together with the appropriate application fee as approved by the state board of regents pursuant to Iowa Code subsection 262.9(18) and detailed in rule 681.1.7(262), and have their secondary school provide a transcript of their academic record, including credits and grades, rank in class, and certification of graduation. Applicants must also submit SAT Reasoning Test or ACT scores. Applicants whose primary language is not English must also meet the English language proficiency requirement specified by each university. Applicants may be required to submit additional information or data to support their applications.

1.1(2) Admission criteria

a. Effective for students who seek admission prior to fall 2009. Graduates of approved Iowa high schools who have the subject matter background required by each university and who rank in the upper one-half of their graduating class will be admitted to any regent university. Applicants who are not in the upper one-half of their graduating class may, after an individual review of their academic and test records, and at the discretion of the admissions officers:
   (1) Be admitted unconditionally,
   (2) Be admitted conditionally,
   (3) Be required to enroll for a tryout period during a preceding summer session, or
   (4) Be denied admission.

b. Effective for students who seek admission in fall 2009 and thereafter.
   (1) Decisions on admission to a regent university are based on the following four factors: performance on standardized tests (SAT Reasoning Test or ACT); high school grade point average (GPA); high school percentile rank in class; and number of high school courses completed in the core subject areas. These factors are used in the following equation to calculate a regent admission index (RAI):

   \[ RAI = (2 \times \text{ACT composite score}) + (1 \times \text{high school rank expressed as a percentile}) + (20 \times \text{high school grade point average}) + (5 \times \text{number of high school courses completed in the core subject areas}) \]

   Note: For purposes of calculating the regent admission index, the ACT composite score has a top value of 36 (SAT scores will be converted to ACT composite equivalents); high school rank is expressed as a percentile with 99 percent as the top value; high school GPA is expressed in a four-point scale; and number of high school courses completed in the core subject areas is expressed in terms of years or fractions of years of study.

   (2) Graduates of approved Iowa high schools who have the subject matter background required by each university and who meet the regent admission index of 245 required for automatic admission will be admitted to any regent university. Applicants who do not meet the regent admission index of 245 for automatic admission or for whom a regent admission index cannot be calculated may, after an individual review of their academic and test records, and at the discretion of the admissions officers:
   1. Be admitted unconditionally,
   2. Be admitted conditionally,
   3. Be required to enroll for a tryout period during a preceding summer session, or
   4. Be denied admission.

1.1(3) Graduates of approved high schools in other states may be held to higher academic standards, but must meet at least the same requirements as graduates of Iowa high schools. The options for conditional admission or summer tryout enrollment may not necessarily be offered to these students.

1.1(4) Applicants who are graduates of nonapproved high schools will be considered for admission in a manner similar to applicants from approved high schools, but additional emphasis will be given to scores obtained on standardized examinations.

1.1(5) Applicants who are not high school graduates, but whose classes have graduated, may be considered for admission. These applicants will be required to submit all academic data to the extent that it exists and achieve scores on standardized examinations which will demonstrate that they are adequately prepared for academic study.
1.1(6) Early admission

a. Students with superior academic records may be admitted, on an individual basis, for part-time university study while enrolled in high school or during the summers prior to high school graduation.

b. In rare situations, exceptional students may be admitted as full-time students to a regent university before completing high school. Early admission to a regent university is provided to serve persons whose academic achievement and personal and intellectual maturity clearly suggest readiness for collegiate level study. Each university will specify requirements and conditions for early admission.

This rule is intended to implement Iowa Code section 262.9(3).

681--1.2(262) Admission of undergraduate students by transfer from other colleges

Students desiring admission to the University of Iowa, Iowa State University, or the University of Northern Iowa must meet the requirements in this rule and also any special requirements for the curriculum, school, or college of their choice.

Applicants must submit a formal application for admission, together with the appropriate application fee as approved by the state board of regents pursuant to Iowa Code subsection 262.9(18) and detailed in rule 681-1.7(262), and request that each college they have attended send an official transcript of record to the admissions office. High school academic records and standardized test results may also be required. The Test of English as a Foreign Language (TOEFL) is required of foreign students whose first language is not English.

1.2(1) Transfer applicants with a minimum of 24 semester hours of graded credit from regionally accredited colleges or universities, who have achieved for all college work previously attempted the grade point required by each university for specific programs, will be admitted. Higher academic standards may be required of students who are not residents of Iowa.

Applicants who have not maintained the grade point required by each university for specific programs or who are under academic suspension from the last college attended may, after a review of their academic and test records, and at the discretion of the admissions officers:

a. Be admitted unconditionally,

b. Be admitted conditionally,

c. Be required to enroll for a tryout period during a preceding summer session, or

d. Be denied admission.

1.2(2) Admission of students with fewer than 24 semester hours of college credit will be based on high school academic and standardized test records in addition to review of the college record.

1.2(3) Transfer applicants under disciplinary suspension will not be considered for admission until information concerning the reason for the suspension has been received from the college assigning the suspension. Applicants granted admission under these circumstances will be admitted on probation.

1.2(4) Transfer applicants from colleges and universities not regionally accredited will be considered for admission on an individual basis taking into account all available academic information.

This rule is intended to implement Iowa Code section 262.9(3).

681--1.3(262) Transfer credit practices

The regent universities endorse the Joint Statement on Transfer and Award of Academic Credit approved in 1978 by the American Council on Education (ACE), the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and the Council on Postsecondary Accreditation (COPA). The current issue of Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers (AACRAO), and publications of the Council on Postsecondary Accreditation (COPA) are examples of references used by the universities in determining transfer credit. The acceptance and use of transfer credit is subject to limitations in accordance with the educational policies operative at each university.

1.3(1) Students from regionally accredited colleges and universities

Credit earned at regionally accredited colleges and universities is acceptable for transfer except that credit in courses determined by the receiving university to be of a remedial, vocational, or technical nature, or credit in courses or programs in which the institution granting the credit is not directly involved, may not be accepted, or may be accepted to a limited extent.

Of the course work earned at a two-year college, students may apply up to one-half but no more than 65 hours of the credits required for a bachelor's degree toward that degree at a regent university. This policy became effective September 29, 1993.
1.3(2) Students from colleges and universities which have candidate status

Credit earned at colleges and universities which have become candidates for accreditation by a regional association is acceptable for transfer in a manner similar to that from regionally accredited colleges and universities if the credit is applicable to the bachelor's degree at the receiving university.

Credit earned at the junior and senior classification from an accredited two-year college which has received approval by a regional accrediting association for change to a four-year college may be accepted by a regent university.

1.3(3) Students from colleges and universities not regionally accredited

When students are admitted from colleges and universities not regionally accredited, they may validate portions or all of their transfer credit by satisfactory academic study in residence, or by examination. Each university will specify the amount of the transfer credit and the terms of the validation process at the time of admission.

In determining the acceptability of transfer credit from private colleges in Iowa which do not have regional accreditation, the regent committee on educational relations, upon request from the institutions, evaluates the nature and standards of the academic program, faculty, student records, library, and laboratories.

In determining the acceptability of transfer credit from colleges in states other than Iowa which are not regionally accredited, acceptance practices indicated in the current issue of Transfer Credit Practices of Selected Educational Institutions will be used as a guide. For institutions not listed in the publication, guidance is requested from the designated reporting institution of the appropriate state.

1.3(4) Students from foreign colleges and universities

Transfer credit from foreign educational institutions may be granted after a determination of the type of institution involved and after an evaluation of the content, level, and comparability of the study to courses and programs at the receiving university. Credit may be granted in specific courses, but is frequently assigned to general areas of study. Extensive use is made of professional journals and references which describe the education systems and programs of individual countries.

This rule is intended to implement Iowa Code section 262.9(3).

Residence

681--1.4(262) Classification of residents and nonresidents for admission, tuition, and fee purposes

1.4(1) General

a. A person enrolling at one of the three state universities shall be classified as a resident or nonresident for admission, tuition, and fee purposes by the registrar or someone designated by the registrar. The decision shall be based upon information furnished by the student and other relevant information.

b. In determining resident or nonresident classification, the issue is essentially one of why the person is in the state of Iowa. If the person is in the state primarily for educational purposes, that person will be considered a nonresident. For example, it may be possible that an individual could qualify as a resident of Iowa for such purposes as voting, or holding an Iowa driver's license, and not meet the residency requirements as established by the Board of Regents for admission, tuition, and fee purposes.

c. The registrar, or designated person, is authorized to require written documents, affidavits, verifications, or other evidence deemed necessary to determine why a student is in Iowa. The burden of establishing that a student is in Iowa for other than educational purposes is upon the student.

A student may be required to file any or all of the following:

(1) A statement from the student describing employment and expected sources of support;
(2) A statement from the student's employer;
(3) A statement from the student's parents verifying nonsupport and the fact that the student was not listed as a dependent on tax returns for the past year and will not be so listed in future years;
(4) Supporting statements from persons who might be familiar with the family situation;
(5) Iowa state income tax return.

d. Change of classification from nonresident to resident will not be made retroactive beyond the term in which application for resident classification is made.

e. A student who gives incorrect or misleading information to evade payment of nonresident fees shall be subject to
serious disciplinary action and must also pay the nonresident fees for each term previously attended.

f. Review Committee. These regulations shall be administered by the registrar or someone designated by the registrar. The decision of the registrar or designated person may be appealed to a university review committee. The finding of the review committee may be appealed to the state board of regents.

1.4(2) Guidelines

The following guidelines are used in determining the resident classification of a student for admission, tuition, and fee purposes:

a. A financially dependent student whose parents move from Iowa after the student is enrolled remains a resident provided the student maintains continuous enrollment. A financially dependent student whose parents move from Iowa during the senior year of high school will be considered a resident provided the student has not established domicile in another state.

b. In deciding why a person is in the state of Iowa, the person’s domicile will be considered. A person who comes to Iowa from another state and enrolls in any institution of postsecondary education for a full program or substantially a full program shall be presumed to have come to Iowa primarily for educational reasons rather than to establish a domicile in Iowa.

c. A student who was a former resident of Iowa may continue to be considered a resident provided absence from the state was for a period of less than 12 months and provided domicile is reestablished. If the absence from the state is for a period exceeding 12 months, a student may be considered a resident if evidence can be presented showing that the student has long-term ties to Iowa and reestablishes an Iowa domicile.

A person or the dependent of a person whose domicile is permanently established in Iowa, who has been classified as a resident for admission, tuition, and fee purposes, may continue to be classified as a resident so long as domicile is maintained, even though circumstances may require extended absence of the person from the state. It is required that a person who claims Iowa domicile while living in another state or country will provide proof of the continual Iowa domicile as evidence that the person:

(1) Has not acquired a domicile in another state,
(2) Has maintained a continuous voting record in Iowa, and
(3) Has filed regular Iowa resident income tax returns during absence from the state.

d. A student who moves to Iowa may be eligible for resident classification at the next registration following 12 consecutive months in the state provided the student is not enrolled as more than a half-time student (6 credits for an undergraduate or professional student, 5 credits for a graduate student) in any academic year term, is not enrolled for more than 4 credits in a summer term for any classification, and provides sufficient evidence of the establishment of an Iowa domicile.

e. A student who has been a continuous student and whose parents move to Iowa may become a resident at the beginning of the next term provided the student is dependent upon the parents for a majority of financial assistance.

f. A person who is moved into the state as the result of military or civil orders from the government for other than educational purposes, or the dependent of such a person, is entitled to resident status. However, if the arrival of the person under orders is subsequent to the beginning of the term in which the student is first enrolled, nonresident fees will be charged in all cases until the beginning of the next term in which the student is enrolled. Legislation, effective July 1, 1977, requires that military personnel who claim residency in Iowa (home of record) will be required to file Iowa resident income tax returns.

g. A person who has been certified as a refugee or granted asylum by the appropriate agency of the United States who enrolls as a student at a university governed by the Iowa state board of regents may be accorded immediate resident status for admission, tuition, and fee purposes where the person:

(1) Comes directly to the state of Iowa from a refugee facility or port of debarkation; or
(2) Comes to the state of Iowa within a reasonable time and has not established domicile in another state.

Any refugee or individual granted asylum not meeting these standards will be presumed to be a nonresident for admission, tuition, and fee purposes and thus subject to the usual method of proof of establishment of Iowa residency.

h. An alien who has immigrant status establishes Iowa residency in the same manner as a United States citizen.

i. At the regent institutions, American Indians who have origins in any of the original people of North America and who maintain a cultural identification through tribal affiliation or community recognition with one or more of the tribes or nations connected historically with the present state of Iowa, including the Iowa, Kickapoo, Menominee, Miami, Missouri, Ojibwa (Chippewa), Omaha, Otoe, Ottawa (Odawa), Potawatomi, Sac and Fox (Sauk, Meskwaki), Sioux, and Winnebago (Ho Chunk), will be assessed Iowa resident tuition and fees.
1.4(3) Facts

a. The following circumstances, although not necessarily conclusive, have probative value in support of a claim for resident classification:

(1) Reside in Iowa for 12 consecutive months, and be primarily engaged in activities other than those of a full-time student, immediately prior to the beginning of the term for which resident classification is sought.
(2) Reliance upon Iowa resources for financial support.
(3) Domicile in Iowa of persons legally responsible for the student.
(4) Former domicile in the state and maintenance of significant connections therein while absent.
(5) Acceptance of an offer of permanent employment in Iowa.
(6) Other facts indicating the student's domicile will be considered by the universities in classifying the student.

b. The following circumstances, standing alone, do not constitute sufficient evidence of domicile to effect classification of a student as a resident under these regulations:

(1) Voting or registration for voting.
(2) Employment in any position normally filled by a student.
(3) The lease of living quarters.
(4) Admission to a licensed practicing profession in Iowa.
(5) Automobile registration.
(6) Public records, for example, birth and marriage records, Iowa driver's license.
(7) Continuous presence in Iowa during periods when not enrolled in school.
(8) Ownership of property in Iowa, or the payment of Iowa taxes.

This rule is intended to implement Iowa Code section 262.9(3).

681--1.5(262) Registration and transcripts--general

A person may not be permitted to register for a course or courses at a state board of regents institution until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

A state board of regents institution may withhold official transcripts of the academic record of a person until any delinquent accounts owed by the person to an institution or any affiliated organization for which an institution acts as fiscal agent have been paid.

This rule is intended to implement Iowa Code section 262.9.

Supplemental Specific Rules to The University of Iowa

681--1.6(262) College-bound program

1.6(1) Definitions.

"Accredited private institution" means an institution of higher education as defined in Iowa Code section 261.9, subsection 5.

"Commission" means the college aid commission.

"Financial need" means the difference between the student's financial resources, including resources available from the student's parents and the student, as determined by a completed parents' financial statement and including any non-campus-administered federal or state grants and scholarships, and the student's estimated expenses while attending the institution. A student shall accept all available federal and state grants and scholarships before being considered eligible for grants under the Iowa minority academic grants for economic success program. Financial need shall be reconsidered on at least an annual basis.

"Full-time student" means an individual who is enrolled at an accredited private institution or board of regents university for at least 12 semester hours or the trimester or quarter equivalent.

"Minority person" means an individual who is black, Hispanic, Asian, or a Pacific Islander, American Indian, or an Alaskan Native American.

"Part-time student" means an individual who is enrolled at an accredited private institution or board of regents university in a course of study including at least three semester hours or the trimester or quarter equivalent of three semester hours.

"Program" means the Iowa minority academic grants for economic success program established in this division.

1.6(2) Policy on college-bound program.
a. The regent institutions will cooperate with other state and local agencies, including the department of education, the college aid commission, and educational institutions in implementing the college-bound program.

b. The universities will develop programs for elementary, middle and secondary school students and their families in the following areas:

(1) Encouragement to consider attending a postsecondary institution;
(2) Enrichment and academic preparation;
(3) Information about how to apply for admission.

c. College-bound program vouchers will be awarded to students on the basis of the participation of the student and the student's family in the college-bound program. One voucher will be awarded for participation in each college-bound program sponsored by a university.

(1) Each university will maintain records concerning those students who participate in the college-bound program, according to its established policies and procedures. The records will include information on those students who have received college-bound program vouchers which are described in Iowa Code section 262.92(2). The University of Iowa will maintain a central record on all students who have received college-bound program vouchers on behalf of all regent institutions and will make appropriate information available to the college aid commission.
(2) College-bound program vouchers may be used by students enrolled at a regent institution or at a private college or university in Iowa.
(3) A student holding vouchers and enrolling at a regent institution will receive priority in the award of funds under the Iowa minority academic grants for economic success (IMAGES) program. Awards under the IMAGES program are made on the basis of financial need. A student may be eligible for an additional award from the institution in which the student is enrolled.
(4) A student holding vouchers and enrolling at a private college or university in Iowa will receive priority in the award of funds under the Iowa minority academic grants for economic success program as provided by the rules of the college aid commission.
(5) The presidents, or their designees, will administer and coordinate the college-bound program at the universities. As part of the coordination, they will establish liaison with the appropriate state and local agencies, serve as the university contact and promote collaborative efforts among the regent universities and other appropriate agencies and institutions. Annual reports to the board of regents shall be prepared by each regent university. The reports shall contain relevant information as to the accomplishments of the program in the past year and a plan of action with goals and objectives for the forthcoming year. Reports shall be submitted to the board of regents on October 1 of each year.

This rule is intended to implement Iowa Code section 262.92.

681--1.7(262) Application fees

Application fees required for admission to the University of Iowa, Iowa State University and the University of Northern Iowa are as follows:

University of Iowa

Undergraduate domestic student: $40
Undergraduate international student: $60
Graduate/professional domestic student: $60
Graduate/professional international student: $85
Pharm.D. student: $40
Re-entry fee: $20

This rule is intended to implement Iowa Code section 262.9(3).

681--2.1(262) Formal application for admission

All applicants for admission to any college of the University of Iowa must submit a formal application for admission with the required official transcripts and other supporting material as required to the director of admissions. Students may not be registered until they have been issued an admission statement by the director of admissions.

681--2.3(262) College of Business Administration

2.3(1) Application for admission

Applications for admission to the college of business administration should be submitted to the director of admissions. Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.
2.3(2) Requirements for admission

For admission to the college of business administration an applicant must have--

a. Completed specific course work as prescribed by the faculty of the college.

b. Attained satisfactory scores on the university's required admission examinations.

c. Maintained a satisfactory grade-point average on all courses undertaken, and on all courses undertaken at the University of Iowa, and on all courses undertaken in business and economics.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be reviewed by the admissions committee of the college, and upon favorable recommendation of the committee, such students may be granted conditional or probationary admissions.

Fulfillment of the minimal requirements listed above, however, does not assure admission to the college of business administration. From those applicants who meet the minimum requirements, the admissions committee will select the applicants who, in their judgment, appear to be best qualified.

681--2.4(262) College of Dentistry

2.4(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Applicants for admission to dentistry are encouraged to complete a program leading to a baccalaureate degree before entering dentistry. Applicants should consider a combined program of liberal arts and dentistry which would qualify them for a baccalaureate degree upon the completion of the freshman year in dentistry. Preference will be given to students who have the baccalaureate degree or who have completed the requirements for the degree in a combined program.

Fulfillment of the specific requirements for admission listed does not ensure admission to the college of dentistry. From the applicants meeting the minimum requirements, the admissions committee will select the applicants who in their judgment appear to be best qualified for the study and practice of dentistry.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work outlined below will suffice to meet the minimal academic requirements for admission to the college of dentistry.

The college curriculum must include at least three academic years of accredited work comprising not less than 96 semester hours and including specific required science courses as prescribed by the faculty of the college. Electives should be chosen so as to give the applicant a well-rounded educational background.

In order to meet minimum scholarship requirements, the applicant should attain a cumulative grade-point average of 2.5. Since the quality of course work in predental science is basic to success in dentistry, special consideration to such college work is given by the admissions committee. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions and the committee on admissions of the college of dentistry.

Applicants who have completed the requirements for admission to dentistry five or more years prior to seeking admission to this college of dentistry will be considered by the admissions committee only under exceptional conditions.

Preference will be given to applicants who are residents of Iowa, but consideration will also be given to outstanding nonresidents.

Personal interviews will be required of applicants for admission to the college of dentistry. Applicants will be notified when they should appear for the required interviews with members of the admissions committee.

All applicants must complete the dental aptitude tests sponsored by the council on dental education of the American Dental Association. Tests are given three times annually. The University of Iowa is a testing center.

To facilitate early selection, applicants for admission to the college of dentistry are urged to complete the aptitude test no later than October to enable the admissions committee to begin its selection in December.

Accepted applicants are required to make the required deposit within two weeks after notification of favorable action on
their applications. This deposit is not refundable but is credited toward the first fee payment. The applicant who fails to
make the deposit within the time specified forfeits a place in the entering class.

Applicants accepted for admission are required to submit a satisfactory physical examination report to the university
student health service within two weeks following notification of acceptance.

All applicants must also complete, through student health service, an X-ray film of the chest and a successful
vaccination against smallpox prior to registration.

2.4(2) Advanced standing

Applications for admission with advanced standing are handled as individual cases.

681--2.5(262) College of Engineering

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.

Closing dates for receiving applications will be announced well in advance of the opening date of any session.

2.5(1) Admission of freshman students

The applicant must submit a formal application for admission and must have the secondary school provide a certificate
of high school credits, including a complete statement of the applicant's high school record, rank in class, scores on
standardized tests, and certification of high school graduation. The applicant must also submit any other evidence
such as a certificate of health that may be required by this university.

Each applicant must have attained satisfactory scores on the university's required admission examinations, maintained
a satisfactory cumulative grade-point average, achieved satisfactory rank in graduating class, and successfully
completed all prerequisite courses. The university with the approval of the state board of regents shall establish and
periodically review specific minimum requirements for admission to the college of engineering. Among the items to be
so determined are test score, grade-point average, class rank and prerequisite courses. These specific determinations
will be published in the university catalog.

From applicants who do not meet minimum admission requirements, the director of admissions may after a review of
the applicant's record: (a) Admit unconditionally, (b) admit on probation, (c) require enrollment for a tryout period during
a preceding summer session, or (d) deny admission.

2.5(2) Admission of undergraduate students by transfer

The applicant must submit a formal application and official transcript of college work. Each applicant should have:

a. Maintained satisfactory progress in mathematics.

b. Attained satisfactory scores on the university's required admission examinations.

c. Maintained a satisfactory cumulative grade-point average on all college work undertaken.

From applicants who do not meet recommended requirements, the director of admissions will review individual records
and may offer probationary admission.

681--2.6(262) Graduate College

Graduates of any college or university accredited by regional accrediting associations may if the academic record is
satisfactory be admitted to the graduate college. Admission to the graduate college is not the equivalent of acceptance
as a candidate for an advanced degree. Such acceptance is given usually after the completion in residence of work at
the university and upon recommendation of the major department and approval by the dean of the graduate college.
The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within four semester hours of having satisfied all the requirements for the bachelor's degree at the
University of Iowa may be given a tentative admission to the graduate college.

681--2.7(262) College of Law

2.7(1) Application for admission

Address all inquiries concerning admission to the Director of Admissions, University of Iowa, Iowa City, Iowa.
Beginning students may enter the college of law only in the summer session or the fall semester. Closing dates for
receiving applications will be announced well in advance of the opening date of any session.

To be considered for admission, an applicant should have attained a cumulative grade-point average of at least 2.3 on
all college work undertaken. The grade-point average is based upon the University of Iowa's marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated by the office of admissions.

Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the college of law.

Each applicant for admission must take the Law School Admission Test administered by the Educational Testing Service, Princeton, New Jersey, and have the score forwarded to the college of law. The test is given several times per year and may be taken at numerous locations in the United States and throughout the world. Applicants are urged to take the test in the fall or winter preceding the fall semester for which they are making application. Except upon a showing acceptable to it, the admissions committee will not consider applications from students who fail to take the test prior to the June 1 preceding the fall semester in which they wish to enter.

Fulfillment of the specific requirements for admission listed above does not ensure admission to the college of law. From the applicants meeting the minimum requirements, the admissions committee of the college of law will select those applicants who, in their judgment, appear to be best qualified for the study and practice of law. The law admissions committee may require personal interviews of applicants.

2.7(2) Admission with advanced standing

A transfer student may be eligible for admission if the student (a) has attended a school approved by the Association of American Law Schools; (b) is in good standing at the time of withdrawal (evidenced by a letter from the dean of the school from which transferring); (c) meets the admission requirements for beginning students; and (d) has done substantially above average work in the law school the student attended. Where an applicant has completed more than one year of law study, advanced standing will be permitted only in exceptional cases. Applicants for admission with advanced standing should comply with the procedures required for admission to the first-year class.

681--2.8(262) College of Medicine

2.8(1) Application for admission

Address all inquiries regarding admission to the Director of Admissions, University of Iowa.

Applicants are urged to apply as early as possible, since this will give the admissions committee more time to devote to each application. Closing dates for receiving applications will be announced well in advance of the opening date of any session.

Fulfillment of the specific requirements for admission listed below does not ensure admission to the college of medicine. From the applicants meeting the specific requirements, the admissions committee of the college of medicine will select those applicants who in their judgment appear to be best qualified for the study and practice of medicine.

Prior to entrance an applicant must:

a. Have received the baccalaureate degree; or

b. Have completed three years of a combined baccalaureate-medicine curriculum which qualifies the applicant to receive the baccalaureate degree on completion of the first year in medicine; or

c. Have completed three years of a baccalaureate program which includes the general graduation requirements of the college of liberal arts of the University of Iowa for the combined baccalaureate degree.

Each applicant must place on file in the office of the director of admissions the completed application form and an official transcript from each college attended.

The college work as outlined below will suffice to meet the minimal academic requirements for admission to the college of medicine.

Applicants who have completed the baccalaureate degree and required courses five or more years prior to seeking admission to this college of medicine will be considered by the admissions committee only under exceptional conditions.

The college curriculum must include at least three years (equivalent to 96 semester hours) including specific required science courses as prescribed by the faculty of the college.

Students planning to study medicine should bear in mind that other college work is required in addition to prerequisite sciences because it offers an opportunity to secure a well-rounded education, which is of special importance to those entering the medical profession. In the selection of applicants, preference will be given to those who give evidence of having obtained such a broad education.

To be considered for admission, an applicant must have attained a grade-point average of at least 2.5 for all college work undertaken. As the quality of work in premedical science is very basic to success in medicine, special attention
will be given by the admissions committee to grades in science. The grade-point average is based upon the University
of Iowa’s marking system in which a grade of "A" is equivalent to four points. Other marking systems will be evaluated
by the office of admissions and the committee on admissions of the college of medicine.

Preference will be given to applicants with high scholastic standing who are residents of Iowa, and consideration will
also be given to outstanding nonresidents. Applicants for admission are required to take the medical college
admissions test which is administered for the Association of American Medical Colleges. Applicants are requested to
complete this test in May or October of the year preceding that for which they are applying for admission. Students
may make arrangements to apply for this examination through the university examination service, the University of
Iowa.

Personal interviews will be required. Applicants will be contacted for the appointment for required interviews.

Applications accepted for admission are required to submit a satisfactory physical examination report to the university
student health service within two weeks following notification of acceptance.

All applicants must also complete, through student health service, an X-ray film of the chest and successful vaccination
against smallpox prior to registration.

2.8(2) Admission to advanced standing

If their work preparatory to entering a college of medicine would have met entrance requirements of this college,
students from other approved medical colleges may be admitted to advanced standing according to the following
conditions:

Only applicants of high scholastic standing will be considered.

They must present certificates showing that they have satisfactorily completed courses equivalent to those already
pursued by the class they wish to enter.

The committee on admission to advanced standing will decide in each case whether examinations in the various
subjects will be required.

Applications will be considered only upon receipt of a statement from the dean or registrar of the college from which
the applicant comes, showing the actual amount of time the student has spent in the study of medicine, the courses
taken, and the grades received, together with a statement of the work preparatory to entering upon the course in
medicine.

No advanced standing will be granted to students from other than approved medical schools. Students may be
granted subject credit upon recommendation of the head of the department concerned, for work taken in other than
medical schools.

2.8(3) Unclassified students

Applications for admission to the college of medicine who are not candidates for a degree but who desire to register for
special subjects, will be admitted to any lecture or laboratory course only upon complying with all the regular
requirements for admission to such course or by action of the faculty upon recommendation of the professor in charge
of the course.

681--2.9(262) College of Nursing

Applications for admission to the college of nursing should be submitted to the Director of Admissions, The University
of Iowa, Iowa City, Iowa. Applicants for admission to the undergraduate program in nursing must present a minimum of
30 semester hours completed in an accredited college. For admission to the college of nursing an applicant must have:

1. Completed specific course work as prescribed by the faculty of the college. The director of admissions will provide a
list of the course work required.

2. Completed the American College Tests.

3. Performed satisfactorily on all courses undertaken.

Applications from students who have minor deficiencies in meeting grade-point requirements specified above will be
reviewed by the admissions committee of the college, and, upon favorable recommendation of the committee, such
students may be granted conditional or probationary admissions.

Fulfillment of the minimum requirements listed above, however, does not assure admission to the college of nursing.
From those applicants who meet the minimum requirements, the admissions committee will select the applicants who,
in their judgment, appear to be best qualified.

681--2.10(262) College of Pharmacy
2.10(1) General basis for admission

Fulfillment of the specific requirements for admission does not ensure admission to the college of pharmacy. From the applicants meeting the specific requirements, the admissions committee will select those applicants who in their judgment appear to be best qualified. Applicants for admission to pharmacy should have graduated from an approved high school or have an equivalent amount of training.

2.10(2) College work

The college work as outlined below will meet the minimum academic requirements for admission to the college of pharmacy. The minimum should include 32 semester hours of college level work exclusive of credit in military and air science and physical education. The 32 semester hours must include:

- Communication skills. Applicants must have demonstrated satisfactory achievement in communication skills according to the requirements of the college of liberal arts at the state University of Iowa. Applicants from other institutions may meet this requirement by presenting six semester hours of credit in English composition and rhetoric and two semester hours of credit in speech or an eight-semester-hour year course in communication skills.
- Inorganic chemistry and qualitative analysis, eight semester hours.
- College mathematics, eight semester hours.
- Physics or zoology, eight semester hours.
- Students from other institutions may substitute a comparable eight-semester-hour course in biology in lieu of zoology.
- Military or air science (if available), zero to two semester hours.
- Students who present minor deficiencies in meeting the above requirements may be admitted to the college of pharmacy upon the recommendation of the dean of admissions and the college of pharmacy.

2.10(3) Scholarship and application deadline

To be considered for admission to the college of pharmacy, students must have earned a 2.0 or "C" average on all collegiate work undertaken. The minimum grade-point average of 2.0 is based on the state University of Iowa's marking system in which the grade of "A" is equivalent to four points. Applications for admission and the required official transcripts should be filed before March 1 for the class to enter pharmacy in September.

2.10(4) Required tests

Applicants for admission are required to take the American College Testing Program test.

2.10(5) Current requirements

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may if their college academic average is acceptable be admitted and granted advanced standing toward the degree of bachelor of science in pharmacy.

681--2.11(262) College of Liberal Arts and Sciences

Applicants for admission to liberal arts and sciences must meet the rules that are common to the three state institutions in Iowa as listed in 681--1.1(262), 1.2(262) and 1.3(262).

681--2.12(262) College of Education

Students at the university desiring professional work in education are registered in the college of liberal arts and sciences or the graduate college. Requirements for permission to take teacher-training courses are listed in the university catalog.
University Calendar

2009 Fall Semester

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>August 24</td>
<td>Classes begin</td>
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<tr>
<td>September 7</td>
<td>University holiday</td>
</tr>
<tr>
<td>November 22-29</td>
<td>Thanksgiving recess</td>
</tr>
<tr>
<td>November 26-27</td>
<td>University holidays</td>
</tr>
<tr>
<td>December 11</td>
<td>Classes end</td>
</tr>
<tr>
<td>December 14-18</td>
<td>Exam week</td>
</tr>
<tr>
<td>December 19</td>
<td>Commencement ceremonies</td>
</tr>
<tr>
<td>December 24-25</td>
<td>University holidays</td>
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2009-10 Winter Session

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>December 28-January 15</td>
<td>Classes begin</td>
</tr>
<tr>
<td>January 1</td>
<td>University holiday</td>
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</table>

2010 Spring Semester

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>January 18</td>
<td>University holiday</td>
</tr>
<tr>
<td>January 19</td>
<td>Classes begin</td>
</tr>
<tr>
<td>March 14-21</td>
<td>Spring break</td>
</tr>
<tr>
<td>May 7</td>
<td>Classes end</td>
</tr>
<tr>
<td>May 10-14</td>
<td>Exam week</td>
</tr>
<tr>
<td>May 13-16, June 4</td>
<td>Commencement ceremonies</td>
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2010 Summer Sessions

<table>
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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>May 17-June 4</td>
<td>Three-week session</td>
</tr>
<tr>
<td>May 31</td>
<td>University holiday</td>
</tr>
<tr>
<td>June 8-July 30</td>
<td>Eight-week session</td>
</tr>
<tr>
<td>June 22-July 30</td>
<td>Six-week session</td>
</tr>
<tr>
<td>July 5</td>
<td>University holiday</td>
</tr>
</tbody>
</table>

Some dates may change; see the most up-to-date academic calendar at http://www.registrar.uiowa.edu.

Office of the Registrar Calendars

The Office of the Registrar provides several additional calendars that list detailed academic deadlines, final exam schedules, and University holidays. It also publishes an interfaith religious holiday calendar, an academic year desk calendar (PDF file), and a five-year academic calendar (PDF file available). See Calendars on the Office of the
Registrar web site.

**Individual College Calendars**

Some University of Iowa colleges have academic year schedules that are different from the one listed above. Contact the individual colleges or visit their web sites; use the A-Z Search or the Phonebook/E-mail directory on the University of Iowa home page (http://www.uiowa.edu).
Campus Visits

Each year The University of Iowa is the destination for visitors with wide-ranging interests. Prospective and new students and their parents, new faculty and staff members, fans of intercollegiate athletics, University of Iowa Health Care patients, audiences for the visual and performing arts, museum visitors, and conference and continuing education participants are among those drawn to the campus.

Prospective and New Students

Prospective and new students should come first to the Admission Visitors Center, C110 Pomerantz Center, 213 N. Clinton Street. The center is open weekdays 8:30 a.m. to 4:30 p.m. and selected Saturday mornings. It is best to visit the campus on weekdays, when classes are in session and when other University offices are open. Please call the Office of Admissions to arrange for a campus visit: toll-free nationwide 1-800-553-IOWA (4692); direct dial 319-335-1569.

Attractions, Campus Maps, Parking

For links to campus maps, walking tours, how to arrange visits to varied attractions, and where to park on campus, see Campus Maps & Tours. For additional information about the University, use the A-Z Search on the University’s home page (http://www.uiowa.edu).